



AUSTRALIAN DEFENCE  
FORCE ACADEMY

# ADFA HANDBOOK

2006

Located in the national capital, The Australian Defence Force Academy (ADFA) in Canberra provides higher education for the Australian Defence Force. UNSW@ADFA is a multi-disciplinary campus of the University of New South Wales and has internationally recognised staff. UNSW@ADFA offers undergraduate programs leading to UNSW bachelor degrees in Arts, Business, Engineering, Science and Technology. Local and international students are also welcome to pursue postgraduate coursework and research programs in a wide variety of disciplines at this world-class institution.



## 2006 Principal Dates

Month	Event
<b>January</b>	
20	Applications for postgraduate study in Session 1 close
<b>February</b>	
6 - 7	Academic Orientation and Enrolment for Commencing Undergraduates
15	Postgraduate coursework student orientation evening
<b>March</b>	
3	Last day to add S1 distance mode courses
6	Session 1 Begins
17	Last day to add S1 on-campus courses
31	Session 1 Census date
31	Last day to drop S1 courses without financial penalty
<b>April</b>	
21	Provisional exam timetable S1 released
28	Last day to drop S1 courses without academic penalty
<b>May</b>	
3	Last day to report S1 exam clashes
6 - 21	Session 1 Recess
<b>June</b>	
2	Final exam timetable S1 released
13	Applications for postgraduate study in Session 2 close
19 - 23	Restricted Assessment Week (S1) Begins/Ends
23	Session 1 Ends
26	Exam Period Begins S1
<b>July</b>	
8	Exam Period Ends
9 - 23	Mid-year break
12	Postgraduate coursework student orientation evening
19	Assessment Review Groups meet S1
21	Last day to add S2 distance mode courses
21	Session Results Published S1
24	Session 2 Begins
<b>August</b>	
4	Last day to add S2 on-campus courses
31	Session 2 Census date
31	Last day to drop S2 courses without financial penalty
<b>September</b>	
8	Provisional exam timetable S2 released
15	Last day to drop S2 courses without academic penalty
20	Last day to report S2 exam clashes
23 - 1 Oct	Session 2 Recess
<b>October</b>	
13	Final exam timetable S2 released
23 - 27	Restricted Assessment Week (S2) Begins/Ends
27	Session 2 Ends
28 - 5 Nov	Session 2 study recess
<b>November</b>	
4	Exam Period Begins S2
17	Exam Period Ends S2
29	Assessment Review Groups meet S2
<b>December</b>	
2	Session Results Published S2
13	Prizes & Awards Ceremony
13	Degree Conferring Ceremonies

### Public Holiday Compensation:

Monday 20/3 Canberra Day – Monday lost  
 Friday 14/4 Easter Friday – Friday lost  
 Monday 17/4 Easter Monday – Monday Timetable on Thursday 20/4  
 Tuesday 25/4 ANZAC Day – Tuesday lost  
 Monday 12/6 Queen's Birthday – Monday Timetable on Wednesday 14/6  
 Monday 2/10 Labour Day – Monday lost

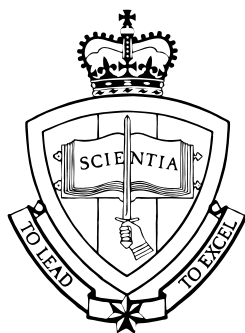
## 2006 Committee Meeting Dates

<b>Academic Board</b>
Friday, 24 March at 1:40pm
Friday, 9 June at 1:40pm
Friday, 4 August at 1:40pm
Friday, 20 October at 1:40pm
<b>Undergraduate Education Committee</b>
Friday, 31 March at 9am
Friday, 2 June at 9am
Friday, 28 July at 9am
Friday, 1 September at 9am
<b>Postgraduate Coursework Education Committee</b>
Friday, 10 March at 9am
Friday, 26 May at 9am
Friday, 21 July at 9am
Friday, 8 September at 9am
<b>Research Committee</b>
Friday, 10 February at 9am
Friday, 17 March at 9am
Friday, 7 April at 9am
Friday, 5 May at 9am
Friday, 16 June at 9am
Friday, 7 July at 9am
Friday, 11 August at 9am
Friday, 15 September at 9am
Friday, 13 October at 9am
Friday, 17 November at 9am
<b>Assessment Review Group</b>
Wednesday, 19 July at 9:00am
Wednesday, 29 November at 8:30am
<b>Corporate Website Advisory Committee</b>
Friday, 24 February at 9am
Friday, 28 April at 9am
Friday, 30 June at 9am
Friday, 25 August at 9am
Friday, 27 October at 9am
Friday, 15 December at 9am
<b>Information Technology Infrastructure Advisory Committee</b>
Friday, 3 February at 9am
Friday, 19 May at 9am
Friday, 18 August at 9am
Friday, 10 November at 9am
<b>Teaching and Learning Committee</b>
Thursday, 23 February at 2pm
Thursday, 30 March at 2pm
Thursday, 27 April at 2pm
Thursday, 25 May at 2pm
Thursday, 29 June at 2pm
Thursday, 27 July at 2pm
Thursday, 31 August at 2pm
Thursday, 21 September at 2pm
Thursday, 26 October at 2pm
Thursday, 30 November at 2pm

## Important Dates in 2007

<b>March</b>	
5	Session 1 commences
<b>May</b>	
5	Session 1 recess (5 May - 20 May)
<b>June</b>	
18 - 22	Restricted Assessment Week
22	Session 1 ends
25	Examinations (25 June - 7 July)
<b>July</b>	
8 - 22	Mid-year break
18	Assessment Review Group
23	Session 2 commences
<b>September</b>	
22	Session 2 recess (22 September - 1 October)
<b>October</b>	
22 - 26	Restricted Assessment Week
26	Session 2 ends
27	Study recess (27 October - 4 November)
<b>November</b>	
5	Examinations (5 November - 16 November)
28	Assessment Review Group
<b>December</b>	
12	Degree conferring ceremonies
13	Graduation Parade

# AUSTRALIAN DEFENCE FORCE ACADEMY



## Handbook 2006



DEPARTMENT  
OF DEFENCE

THE UNIVERSITY OF  
NEW SOUTH WALES



## **Preface**

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This Handbook has been specifically designed as a source of detailed reference information for undergraduate and postgraduate students at UNSW@ADFA.

A separate Handbook is published by The University of New South Wales which includes all other faculty entries.

For further information about The University of New South Wales - its organisation; staff members; description of disciplines; scholarships; prizes and so on, consult the University Calendar (Summary Volume). For further information on student matters, consult the myUNSW website ([www.my.unsw.edu.au](http://www.my.unsw.edu.au)).

The University of New South Wales at the Australian Defence Force Academy (UNSW@ADFA) is a registered ACT Provider under ESOS Act 2000 - CRICOS Provider Code: 00100G

Programs, courses and any arrangements for courses including staff allocated, as stated in the Calendar or any Handbook or any other publication, announcement or advice of the University, are an expression of intent only and are not to be taken as a firm offer or undertaking. The University reserves the right to discontinue or vary such programs, courses, arrangements or staff allocations at any time without notice. UNSW@ADFA reserves the right not to offer any courses with enrolments of six or less.

Information in this Handbook has been brought up to date as at 15 November 2005 but may be amended without notice by UNSW@ADFA.

## **Contact Details for UNSW@ADFA**

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The postal address of the Australian Defence Force Academy is:

Canberra, ACT 2600, Australia

General correspondence relating to the Academy should be addressed to the Commandant, Australian Defence Force Academy.

Correspondence on academic matters should be addressed to Student Administrative Services, UNSW@ADFA.

### **Academic Enquiries**

Telephone: (02) 6268 6000  
(+61 2 6268 6000 for international)

Facsimile: (02) 6268 8666  
(+61 2 6268 8666 for international)

Email: [sas@adfa.edu.au](mailto:sas@adfa.edu.au)

Website: [www.unsw.adfa.edu.au](http://www.unsw.adfa.edu.au)

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# HOW TO USE THIS HANDBOOK

## Guide to Acronyms

The following key provides a guide to abbreviations used in this book:

AARNET	Australian Academic Research Network
ACME	<b>(School of) Aerospace, Civil and Mechanical Engineering</b>
ASG	Academic Support Group
ETS	Educational Technology Services
F	full year (Session 1 plus Session 2)
F/T	full-time
HASS	<b>(School of) Humanities and Social Sciences</b>
HPW	hours per week
HPS	hours per session
HPY	hours per year
IT	Information technology
ITEE	<b>(School of) Information Technology and Electrical Engineering</b>
ICTS	Information Communication Technology Services
L	lecture
LAB	laboratory
P	practical
PEMS	<b>(School of) Physical, Environmental and Mathematical Sciences</b>
P/T	part-time
S1	Session 1
S2	Session 2
SAS	Student Administrative Services
SS	single Session, but which Session taught is not known at time of publication
SOB	<b>(School of) Business</b>
T	tutorial
TH	total hours
UOC	units of credit
UNSW@ADFA	The University of New South Wales at the Australian Defence Force Academy
UNSW	The University of New South Wales

## Glossary of Terms

**ADFAPASS:** the password that gains access to WebCT, ADFA student email, library electronic facilities and other ADFA facilities.

**Assessment:** The process of evaluating learning outcomes, as reflected in the quality of a student's submitted assignments, examination responses and other kinds of assessment tasks, relative to the standard expected.

**Assumed Knowledge:** What a lecturer or tutor of a course could reasonably expect all students enrolled in that course to know at the outset.

**Co-requisite:** A co-requisite course is a course that must be studied before, or at the same time as, another specified course.

**Course:** A unit of instruction approved by the University as being a discrete part of the requirements for a program offered by the University. It is identified by a course code.

**Course Authority:** Is responsible for the assessment in a course. A course authority is the Head of the School in which the course is taught.

**Course Convenor:** Is responsible for a course. His or her responsibilities include the co-ordination of the academic staff teaching and/or marking in the course, the determination of the assessment, preparation and distribution of course hand-outs, and the determination of the provisional final mark for students enrolled in the course. The course convenor also acts as, or appoints in his or her stead, a referee who must be available to resolve queries at the time of any examination in the course.

**Deferment:** The University of New South Wales allows applicants to delay the commencement of a program for a period of one year. Deferment is granted once an offer has been accepted. Applicants who defer an offer have automatic entry to the same program in the following year provided they do not undertake study at a tertiary institution during the year for which the deferment is granted.

**Directed Studies:** Compulsory courses that all undergraduate students enrolled from 2002 (excluding BTech students) must undertake as part of the degree requirements.

**Excluded:** A course that has exclusions listed may not be undertaken if any of the excluded courses have been completed.

**Flexible Courses:** This is not an official mode of study but is sometimes used to describe on-campus courses that have minimal or irregular attendance requirements. On-line facilities usually provide the communication channels between course participants.

**Hours per Week:** The number of class contact hours for the course per week.

**Leave of Absence:** Once a student has completed at least one full-time (or equivalent) session of study, Leave of Absence may be granted for a period of up to one year. In exceptional circumstances this may be extended. Students who are granted a leave of absence do not have access to university resources and services (such as Academy Library and email services) during their leave of absence.

**Major:** An approved combination of 48 units of credit in the one discipline area, of which at least 36 units of credit are for upper-level courses.

**Minor:** An approved combination of 24 units of credit in the one discipline area, of which at least 12 units of credit are for upper-level courses.

### Modes of Delivery

*Distance Mode:* Where a course is delivered outside the University using various forms of media including CD-ROM, printed material and the World Wide Web. Some courses include an optional face-to-face workshop (NB: students enrol in the class type 'DM02').

*Intensive Delivery Mode (IDM):* Where a course is delivered using a variety of media including CD-ROM, printed material and the World Wide Web. The student must attend the University for a period of face-to-face instruction usually in the form of one full-time week often preceded and followed by a period of online interaction (NB: students enrol in the class type 'IDM3').

*On-campus:* Where a course is delivered primarily using face-to-face teaching and students are required to regularly attend classes at the University. Some courses may include an optional face-to-face workshop. (NB: students enrol in the class type '0001').

**Non-award:** For students who are enrolled in course/s but are not proceeding to a degree, diploma or graduate certificate of the University.

**Plan:** Also known as Major in undergraduate degrees. In postgraduate coursework programs, it is an area of concentration or specialisation defined by a sequence of courses which must be completed.

**Pre-requisite:** An essential prescribed level of achievement that must be reached in specified course/s before a student is permitted to enrol in that course. If pre-requisites are not required, a level of assumed knowledge is usually specified.

**Professional Practicum:** A scheme designed for students from overseas universities who wish to come to UNSW to obtain research experience or professional/industrial practice. The professional practicum is for a limited period and is usually between two and six months in duration.

**Program:** A program is an approved course of study leading to an award of the university. A student is admitted to a program, and on successful completion of all program requirements is awarded the degree to which the program relates. Concurrent enrolment in two programs is prohibited.

**Program Authority:** Is responsible for all matters that affect students enrolled in an award program and is normally the Head of School.

**School:** An organisational unit of the University which is fully or partially responsible for directly teaching one or more courses and/or for fully or partially supervising one or more research students. A School directly provides staff and resources used in the teaching (delivery) of courses and/or supervision of research students.

**Standard Session:** A standard session is a period of prescribed teaching (13 or 14 weeks) followed by an assessment period.

**UNIPASS:** The password that gains access to myUNSW.

**Uniform Units of Credit System:** The University of New South Wales operates a uniform units of credit system for all of its programs. Under this system each standard full-time year of a degree program will accrue 48 units of credit, i.e. 24 units of credit per session.

As a guide, 1 unit of credit equates to approximately 25-30 hours of work per session (including lectures, tutorials, labs and private study).

**Unit of Credit:** The University's academic structure is based on units of credit. Every course in the University has a unit of credit value, with program requirements defined, in part, in terms of the completion of a specified number of units of credit.

**WebCT** – the online learning system that supports many courses. Logging in with your student ID and ADFAPASS will bring up a list of your courses that have an online component.

**Weighted Average Mark:** Is calculated by multiplying the mark obtained for each relevant result by the units of credit of the particular course, adding up the products and dividing by the total number of units of credit for the relevant courses. A 'Term WAM' is calculated for relevant results in a session, and a separate cumulative WAM is calculated for relevant results over the student's entire program.

## Identification of Courses by Numbers

A course is defined by the Academic Board of the University as 'a unit of instruction approved by the University as being a discrete part of the requirements for a program offered by the University'.

The University uses numbers to identify courses, and these are allocated by the Registrar. At UNSW@ADFA the system of numbering is based on the following:

- Each course has a unique Course Identifier comprising an alphabetic prefix and a numeric suffix.
- The authority offering a course is indicated by an alphabetic prefix.
- The particular course is identified by four digits.
- The level of a particular course is indicated by the first digit of the numeric suffix of the course identifier:
 

Undergraduate	– 1 to 4 (eg ZACM1xxx)
Postgraduate (foundation)	– 7
Postgraduate	– 8
Research	– 9
- Each identifying number is allocated to one course only.

The authorities offering courses at UNSW@ADFA are the Schools. The identifying prefixes for each of the Schools are set out below.

School of Aerospace, Civil and Mechanical Engineering  
ZACM Aerospace, Civil and Mechanical Engineering

School of Business  
ZBUS Business, Economics, Management

School of Humanities and Social Sciences  
ZHSS English, History, Indonesian, Politics

School of Information Technology and Electrical Engineering  
ZITE Information Technology, Electrical Engineering

School of Physical, Environmental and Mathematical Sciences  
ZPEM Chemistry, Geography, Oceanography,  
Mathematics and Statistics, Physics

UNSW@ADFA Interdisciplinary Courses  
ZINT Interdisciplinary

General Education Courses  
ZGEN General Education

## Further Identification of Courses in the Course Catalogue

Schools are grouped alphanumerically in the course catalogue.

The course catalogue generally sets out the course descriptor in the following way, for eg:

Line 1: Course Code	ZINT1001
Line 2: Course Title	Engineering Computational Methods 1
Line 3: Staff Contact/s	Dr S. Barry
Line 4: Units of Credit, Contact Hours per week	UOC3 HPW2
Line 5: Session/s of Offer, Mode of Delivery (if offered by distance or flexible delivery)	S2 On-Campus
Line 6: Assumed Knowledge or Pre-requisite/s (if applicable)	N/A
Line 7: Co-requisite/s (if applicable)	N/A

This is followed by the description of course content.

This course introduces.....

## Planning of Degree Programs

The course catalogue identifies the session and mode of offer. Please refer to the course schedules (beginning on page 93 – undergraduate, and page 223 – postgraduate) which outline courses that can be taken within the degree program. Courses not available in the current year are marked “not offered in 2006”.

## Course Availability

UNSW@ADFA reserves the right to cancel courses for which there are insufficient enrolments (normally a minimum of six is required). Advice of cancellation would normally be given to students within the first two weeks of teaching in a given session.



# WELCOME TO UNSW@ADFA

Welcome and congratulations on choosing The University of New South Wales at the Australian Defence Force Academy (UNSW@ADFA) for your degree. By studying at UNSW@ADFA – whether as an undergraduate, postgraduate or research student – you gain all the advantages of studying with one of Australia’s largest, most well-established and research-intensive tertiary institutions, along with the advantages afforded by a small campus.

During your degree you will have the privilege of studying with academic staff who are leaders in their fields, distinguished researchers and committed teachers. You have the opportunity to develop academically on a beautiful campus with a world-class library and academic facilities, coupling the advantages of academic rigour with a small community environment.

Postgraduate students will gain benefits from interacting with a variety of peers including international students. Undergraduates have the advantage of earning a top-quality academic qualification from one of Australia’s Group of Eight research-intensive universities while experiencing the military education and training necessary to become future leaders of the Australian Defence Force.

## A Message to All New Undergraduate Students

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### New Midshipmen and Officer Cadets

We offer our congratulations on your selection to undertake education and training at the Australian Defence Force Academy. Your program at ADFA will provide you with an excellent basis for your leadership role and career in your chosen Service.

While you are at ADFA, the emphasis of your preparations will be on academic studies to develop your intellectual capabilities, capacity for critical thinking and vocational utility. The degree that you select and the academic programs that you undertake will be key elements in the process of your development as one of the future leaders of the ADF. All of UNSW@ADFA’s degrees are considered to be amongst the best offered in Australia and the educational opportunity that ADFA’s students have is a remarkable one. The other very important emphasis will be on military education and training to develop your professional abilities and the qualities of character and leadership that are appropriate to officers in the Australian Defence Force.

In addition to the first-class academic programs that you can undertake at ADFA, there is also a highly challenging military training and education syllabus that is undertaken.

Our intention is to provide you with an exciting, challenging and rewarding experience at ADFA, in a supportive environment where you will have the opportunity, and be encouraged, to excel.

#### **Professor John Baird**

Rector  
UNSW@ADFA

#### **Commodore James Goldrick, AM, CSC, RAN**

Commandant  
Australian Defence Force Academy

## A Message to All New Postgraduate Students

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I would like to congratulate you on choosing the University of New South Wales at the Australian Defence Force Academy (UNSW@ADFA) for your postgraduate studies. You are joining a faculty that is part of a significant research and teaching institution which offers a supportive and stimulating environment to all of its students.

As a postgraduate student at UNSW@ADFA you will be studying towards a degree or other award of The University of New South Wales (UNSW) in a small and focused institution, with ready access to academic staff and facilities and many opportunities to interact with fellow students.

Our internationally recognised academic staff are active in pursuing original research and building our excellent research record. The benefits from their research activities are passed on to you as the student through their teaching, interaction and support.

Staff work closely with organisations in the private and public sector (including the Department of Defence) nationally and internationally to ensure that programs remain relevant in a changing environment. In view of the long-term partnership between UNSW and the Department of Defence, many of the UNSW@ADFA postgraduate programs have a Defence orientation. However all our research and teaching is undertaken in the context of a balanced and liberal education and our programs attract an interesting cross-section of Defence and non-Defence students.

I hope that you will find your studies here at UNSW@ADFA both stimulating and rewarding.

**Professor John Baird**

Rector, UNSW@ADFA

# ABOUT UNSW@ADFA

## The Australian Defence Force Academy

The Australian Defence Force Academy (ADFA) is an Australian Defence Force unit established to provide military and academic training to midshipmen and officer cadets. It is a unique institution that develops some of the future leaders of the Australian armed forces.

The Academy educates and trains cadets through two study programs. Firstly, a program of common and single-Service military studies is provided to all Academy cadets and a small number of cadets from regional military forces.

This is carried out in association with the Royal Australian Navy College, HMAS CRESWELL at Jervis Bay, the Royal Military College at Duntroon and the Royal Australian Air Force College at Point Cook. Secondly, Academy cadets enrol in a three or four year Bachelor degree from the University of New South Wales (UNSW).

ADFA is unusual amongst Western military officer training institutions in that it provides military and academic programs simultaneously to develop the best officers for the three arms of the Australian Defence Force.

The Academy seeks and encourages academic excellence from its students. However, the focus on academic excellence occurs in the context of a strong emphasis on the development of those attributes which midshipmen and officer cadets will need in order to perform effectively as junior leaders when they graduate from the Academy.

Entry to ADFA as a midshipman or officer cadet is by selection. Applications are invited from young men and women who are seeking careers as officers in the Australian Defence Force, and who meet the educational requirements of UNSW as well as certain physical and personal standards. All applicants must apply to Defence Force Recruiting and must also lodge an application with the Universities Admissions Centre (UAC).

UNSW@ADFA also offers postgraduate research and coursework programs to serving members and other employees of the Australian Defence Organisation, as well as to civilians including international students. Full-time or part-time programs are available from graduate certificates through to coursework masters and research degrees. Some programs are available by distance and flexible education. While postgraduate students are not formally associated with the Academy, they need to recognise the unique nature of the establishment and to appreciate that it is a facility shared by the University and Defence, requiring a courteous, cooperative and flexible approach. Applications for entry to postgraduate study programs are made through UNSW@ADFA.

The total number of students enrolled at UNSW@ADFA in 2005 was 1890. Of these 989 were undergraduate students and 901 were postgraduate students.

## Establishment of the Academy

From their foundation, the Royal Military College (1911) and the Royal Australian Naval College (1913) provided general education as well as professional training for cadets, except during the two World Wars when normal courses were curtailed. After World War II, each of the three Armed Services adopted the policy that educational standards should be raised for officers in training.

The establishment of the Royal Australian Air Force College in 1947 was the first move to provide professional education at tertiary level for officer cadets. The College developed into the RAAF Academy in 1957 as an affiliated College of the University of Melbourne, and then its graduates were required to complete degree courses in science at that university, in addition to their flying training and military studies.

Two decades of improvements in courses and standards at the RMC led in 1967 to an agreement between the Department of Defence and The University of New South Wales, under which they would co-operate in the further development of the RMC into a degree-granting institution. To that end, the University established the Faculty of Military Studies at the RMC to conduct courses leading to the award of the University's degrees in arts, science and engineering.

Also in 1967, the University entered into an association with the RAN College enabling it to present approved courses. Subsequently, first-year courses for certain of the University's programs in arts, science and engineering were introduced. Successful midshipmen were sponsored by the Navy to complete bachelor degrees on the University's campus.

Concurrent with the developments at the RAN College and the RMC, there was an inquiry by the Department of Defence into the feasibility of setting up a college for the joint education of officer cadets of the three Armed Services. Investigations on a wider scale followed, with the result that the Federal Government in 1974 announced its intention of establishing a single tertiary institution for the Defence Force. This tertiary institution would combine the existing Service Colleges, as well as two other tertiary establishments for Air Force engineer and business studies cadets.

A Development Council was appointed and this body carried out much of the early planning for the proposed institution. In due course, the Government sought the assistance of The University of New South Wales in setting up the institution in order to ensure its academic integrity. Negotiations led in 1981 to a new agreement between the Commonwealth and the University, under which the University undertook to establish a University College within the ambit of the proposed Australian Defence Force Academy.

In accordance with the agreement, the Interim Academy Council was set up in 1982 to oversee the development of the Academy in co-operation with the University, which developed the University College (now known as UNSW@ADFA). The Academy Council was established in late 1985.

The Australian Defence Force Academy opened in January, 1986.

## Location and Site

The Australian Defence Force Academy is located a few kilometres from Canberra city centre on fifty-two hectares of land in the area bounded by Northcott Drive, General Bridges Drive and Fairbairn Avenue in the Canberra suburb of Campbell. Access to the Academy is possible from all three roads with the main entrance to the Academy being Northcott Drive. Playing fields occupy a further twenty-three hectares, separated from the main site by Fairbairn Avenue.

As may be seen from the site plan at the end of this Handbook, the Academy is divided into four main zones. To the north is the Support Zone; which also contains the Leadership Reaction Course; in a large square area south of this is the Academic Zone; further south and to the west of the grassed main parade ground is the Administration Zone; and to the far west and south-west is the Accommodation Zone comprising the Officers, Senior Non-Commissioned Officers and Junior Ranks messes, the cadet accommodation blocks and the Academy Cadets Mess.

## The University of New South Wales, at the Australian Defence Force Academy (UNSW@ADFA)

Within the Academy, The University of New South Wales (UNSW) has established a college, known as UNSW@ADFA (formally University College), responsible for conducting academic programs and research. UNSW@ADFA offers undergraduate programs leading to UNSW bachelor degrees in Arts, Business, Engineering, Science, and Technology. Additionally we offer opportunities for graduate study and research leading to certificates, diplomas and higher degrees.

At UNSW@ADFA our undergraduate students are midshipmen of the Royal Australian Navy and officer cadets of the Australian Regular Army and Royal Australian Air Force, who are in residence at the Academy, and other members of the Australian Defence Force. In addition to their academic studies, midshipmen and officer cadets undertake programs of military training at the Academy and at Service Training Establishments. Registration for higher degrees is available to both military and civilian applicants.

Entry to undergraduate programs at the Academy as a midshipmen or officer cadet is by selection. Applications are invited from young women and men who are seeking careers as officers in the Australian Defence Force, who have appropriate educational qualifications and meet certain physical and personal standards.

Applications for postgraduate coursework and research are accepted from civilians as well as serving Defence personnel. Further information is available from the UNSW@ADFA Student Gateway ([www.unsw.adfa.edu.au/student](http://www.unsw.adfa.edu.au/student)).

## The University of New South Wales

The University of New South Wales is one of the largest of the Australian universities, with more than 40,000 students and some 5,192 full-time equivalent staff, of whom more than 2200 are academic staff.

The University has ten faculties: the Australian Graduate School of Management, Arts and Social Sciences, Built Environment, the College of Fine Arts, Commerce and Economics, Engineering, Law, Medicine, Science and UNSW@ADFA. A wide range of first degrees, higher degrees, graduate diplomas and other programs is offered, and there are substantial research facilities.

The University was incorporated by an Act of the Parliament of New South Wales in 1949 as The New South Wales University of Technology, a name reflecting the special emphasis of its activities at that time. In 1958 the academic scope was broadened when alterations were made to the Act, and the name was changed to The University of New South Wales.

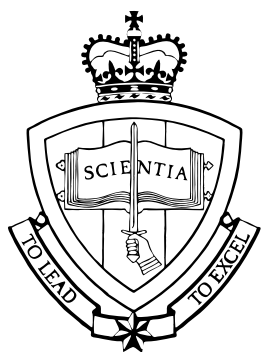
The Act of Incorporation gave the University Council power to establish colleges and Schools. In 1967, the Faculty of Military Studies at Duntroon was established. The Faculty operated until the end of 1985, when its activities were absorbed into the Australian Defence Force Academy.

Under the agreement between the Commonwealth and the University of 7th May 1981, the Council established University College (known as UNSW@ADFA), and the Academy opened in January 1986.

The University of New South Wales main campus is located at Kensington, an inner suburb of Sydney. The Australian Defence Force Academy in Canberra, 300km from Sydney, is not the only sub-campus of the University. The College of the Fine Arts is on a separate campus in Paddington, Sydney.



## The ADFA Badge



The symbology of the Australian Defence Force Academy Badge is as follows:

**The Crown surmounting the Shield**

Allegiance to Crown and Country

**The Commonwealth Star**

Australia

**Three-sided Shield enclosing the Single-Service Colours**

Joint Service nature of the Australian Defence Force Academy

**Navy blue colouring**

Royal Australian Navy

**Red colouring**

Australian Army

**Light blue colouring**

Royal Australian Air Force

**Gauntlet and Sword covering the UNSW**

Book of Knowledge

The Military/Academic bond

**The motto**

'To Lead, To Excel'

## The UNSW Arms

THE UNIVERSITY OF  
NEW SOUTH WALES



Arms of THE UNIVERSITY OF  
NEW SOUTH WALES

Granted by the College of Heraldry,  
London, 3 March 1952

In 1994 the University title was added  
to the Arms to create the University Symbol shown.

**Heraldic Description of the Arms**

Argent on a Cross Gules a Lion passant guardant between four Mulletts of eight points Or a Chief Sable charged with an open Book proper thereon the word SCIENTIA in letters also Sable.

The lion and the four stars of the Southern Cross on the Cross of St George have reference to the State of New South Wales which brought the University into being; the open book with SCIENTIA across its page reminds us of its original purpose. Beneath the shield is the motto 'Manu et Mente' ('with hand and mind'), which was the motto of the UNSW Sydney Technical College, from which the University has developed. The motto is not an integral part of the Grant of Arms and could be changed at will; but it was the opinion of the University Council that the relationship with the parent institution should in some way be recorded.



# POLICIES AND PROCEDURES

## Academic Misconduct/Plagiarism

### Academic Misconduct and Student Misconduct

The Australian Defence Force Academy core attributes of Adaptability, Determination, Initiative, Integrity and Professionalism are fostered in both the military education and training program and the University education component.

The issue of student academic misconduct goes to the heart of these attributes, because it concerns the integrity of the degree from The University of New South Wales and the integrity and professionalism of graduates of the Academy.

As a broad principle, the University expects all students to behave in an appropriate manner, which includes:

- no cheating in exams or tests
- not attempting to gain an advantage over other students, other than by proper academic endeavour
- submission of fair and honest assignment work, and no plagiarism
- appropriate attribution of the work of others in work submitted for assessment
- reasonable behaviour towards others, and
- no misuse of facilities.

Severe penalties may be imposed by the University for breaches of these guidelines.

Bachelor degree students are reminded that information concerning academic misconduct is related to your performance at the Academy and will be disclosed to the Military. This is covered by the provision for the disclosure and handling of personal information consistent with the 2003 Agreement between the Commonwealth of Australia and The University of New South Wales for the provision of educational services at the Australian Defence Force Academy, and the personal information disclosure forms signed by all undergraduate students.

Postgraduate students sponsored by the Department of Defence are reminded that information concerning academic misconduct will be disclosed to your sponsor within the Department. This is covered by the provision for the disclosure and handling of personal information consistent with the 2003 Agreement between the Commonwealth of Australia and The University of New South Wales for the provision of educational services at the Australian Defence Force Academy and the personal information disclosure forms signed by all postgraduate students sponsored by the Department of Defence.

## 1. Introduction

Students and staff are governed by the normal laws which regulate our daily lives. In addition, the University has its own code of rules and conduct which are fundamental to the mission of the University as an institution devoted to the pursuit of excellence in scholarship and research, and to the service of society. These principles apply not only to students but to the whole University community, including staff engaged in research. The principles have been developed over many years and are widely supported by staff and students who are committed to good conduct and academic honesty, and who are keen to see that these values and principles are upheld.

The University Council has defined student misconduct as follows (29 August 1994): Student misconduct includes student academic misconduct and also encompasses conduct which impairs the reasonable freedom of other persons to pursue their studies or research or to participate in the life of the University.

It is very important that all students are familiar with the rules under which they attend the University, use University facilities, and are assessed. This is because students are responsible for managing their own conduct and for knowing what the University's rules concerning good conduct are.

Ignorance of the rules is not an acceptable defence against charges of misconduct.

If you have any concerns about what constitutes misconduct either in general or specific situations, make sure you discuss them with the relevant University authority. In academic matters this will usually be the lecturer in charge of a particular course. Advice can also be obtained from your Head of School, the Associate Dean (Education), or the Manager, Student Administrative Services.

## 2. Student Academic Misconduct

These notes describe the University's policy on student academic misconduct and define actions and behaviour which constitute such misconduct. They include a description of procedures followed by the University where student academic misconduct is alleged and penalties which the University may impose on students guilty of such misconduct.

### 2.1 What is Student Academic Misconduct?

The University Council has defined student academic misconduct as follows (29 August 1994):

Student Academic Misconduct means:

- breach of such rules or guidelines relating to student academic conduct as may be prescribed by Faculties, Boards, Schools or the Vice-Chancellor;
  - misconduct relating to assessment or examinations;
- and
- any other conduct (the general nature of which has been made known to students) regarded as student academic misconduct according to current academic usage.

## 2.2 Types of Student Academic Misconduct

It is important that students realise just how broad the definition of student academic misconduct may be. It certainly covers practices such as cheating or copying or using another person's work. Furthermore, practices which may be acceptable in other situations are considered to be misconduct according to current academic usage within the University.

The following are important examples of the actions which have resulted in students being found guilty of student academic misconduct in recent years:

Misconduct concerning examinations:

- taking unauthorised materials or devices into an examination;
- impersonation in examinations;
- permitting another student to copy answers in an examination;
- exchanging notes between students in an examination;
- improperly obtaining prior knowledge of an examination paper and using that knowledge in the examination;
- removing an examination paper from an examination room when it is specified that the paper is not to be retained by the student.

Misconduct concerning academic works:

- failing to acknowledge the source of material in an assignment;
- quoting without the use of quotation marks or other academically acceptable device to indicate a quotation, even if the source is acknowledged;
- plagiarism;
- submitting work for assessment knowing it to be the work of another person.

Misconduct through misrepresentation:

- submitting a falsified medical certificate;
- submitting a falsified academic transcript.

Two instances of academic misconduct – plagiarism and cheating in exams – are discussed further in Sections 2.3.1 and 2.3.2 below.

## 2.3 Specific examples of Student Academic Misconduct

The following are two examples of student academic misconduct that have been detected frequently in recent years. Penalties imposed on students found guilty of misconduct in these areas have included failure in the course and exclusion from the University for periods as long as five years.

### 2.3.1 Plagiarism and Failure to Acknowledge Sources

Plagiarism involves using the work of another person and presenting it as one's own. Acts of plagiarism include copying parts of a document without acknowledging and providing the source for each quotation or piece of borrowed material. The rules against plagiarism apply whatever the source of the

work relied upon may be, whether printed, stored on a compact disc or other medium, found on the World Wide Web or Internet.

Similarly, using or extracting another person's concepts, experimental results or conclusions, summarising another person's work or, where, there is collaborative preparatory work, submitting substantially the same final version of any material as another student constitutes plagiarism.

It is your responsibility to make sure you acknowledge within your writing where you have "sourced" the information, ideas and facts, etc.

The basic principles are that you should not attempt to pass off the work of another person as your own, and it should be possible for a reader to check the information and ideas that you have used by going to the original source material. Acknowledgement should be sufficiently accurate to enable the source to be located speedily. If you are unsure whether, or how, to make acknowledgement consult your lecturer.

The following are some examples of breaches of these principles:

- a) Quotation without the use of quotation marks or other academically acceptable device. It is a serious breach of these rules to quote another's work without using quotation marks or other academically acceptable device, even if one then refers to the quoted source. The fact that it is quoted must be acknowledged appropriately in your work.
- b) Significant paraphrasing, e.g. several sentences, or one very important sentence, which in wording are very similar to the source. This applies even if the source is mentioned, unless there is also due acknowledgement of the fact that the source has been paraphrased.
- c) Unacknowledged use of information or ideas, unless such information or ideas are commonplace.  
  
Citing sources (e.g. texts) which you have not read, without acknowledging the 'secondary' source from which knowledge of them has been obtained.
- d) Submitting work which is the result of collaboration with others unless approved by the relevant academic staff member.

It is a serious breach of these principles to submit work which is the result of collaboration unless the relevant academic staff member gives a clear indication that, for a particular assignment, joint work or collaborative work is acceptable. In this latter situation, you should specify the nature and extent of the collaboration and the identity of your co-workers.

These principles apply to both text and footnotes of sources. They also apply to sources such as teaching materials, and to any work by any student which has been or will be otherwise submitted for assessment. You must obtain the prior approval of the relevant academic staff member if you wish to submit to that staff member an essay substantially similar to one which has already been, or will be, submitted to another academic staff member.

Using the principles mentioned above about proper acknowledgement, you should also proceed on the general assumption that any work to be submitted for assessment should in fact be your own work.

Students should note that essays, written assignments, computational assignments, designs, laboratory reports and computer code may be tested for a match, for example with source documents on the Internet and other students' submissions from current or past years.

Note: As specified in clause 4.4 below - any student who assists another to commit plagiarism will be subject to the same procedures and penalties as the student who committed the plagiarism.

### 2.3.3 Unauthorised Materials in Exams

The possession of unauthorised materials in exams (which is taken to include class tests/quizzes) is another common example of student academic misconduct. The University's rules for the conduct relating to examinations state that no materials are to be brought into the examination room other than those specified in the examination timetable.

The following are examples of materials and devices which would be regarded as unauthorised (if not specified as being permitted in the examination):

- a) a bag, writing paper, blotting paper, manuscript or book, other than the specified material;
- b) a mobile telephone or other communication device or any type of playback device such as compact disc, mini disk and MP3 players. (If brought into the examination room, such devices must be switched off and placed under the candidate's seat for the duration of the examination);
- c) written or printed notes of any kind or size;
- d) writing on any part of the body;
- e) writing on a ruler or any other instrument;
- f) a calculator or hand-held computer where these are not permitted or where calculators are supplied by the University for the examination;
- g) use of the stored memory capability of a calculator or other electronic device where this is not permitted.

There are simple steps that you can take to ensure you do not infringe the University's rules for examinations:

- read the examination timetable carefully and make sure you fully understand what materials are permitted in the exam;
- place all bags and belongings outside or at the front of the room before the exam commences;
- check your pockets and inside any pencil cases or calculators to ensure that you haven't accidentally left notes in them;
- listen carefully to the instructions given to you by the examination supervisor. Ask for assistance if you have any questions about the rules and arrangements for the examination;

- surrender any unauthorised notes or other materials before the exam begins: if you are found with these after the exam commences you will have broken the examination rules.

### 2.4 Penalties

Students found guilty of academic misconduct can be excluded from the University. Because of the different circumstances in individual cases, the period of exclusion can range from one session to permanent exclusion from the University.

### 2.5 Student Academic Misconduct Procedures

The University has detailed procedures for dealing with allegations or complaints of student academic misconduct. The full text of the Council resolution on student misconduct, which contains details of these procedures, can be obtained from the UNSW web site:

### 2.6 Student Misconduct Rules:

[www.my.unsw.edu.au/student/academiclife/assessment/StudentMisconductRules.html](http://www.my.unsw.edu.au/student/academiclife/assessment/StudentMisconductRules.html)

Procedures for dealing with cases of student misconduct and student academic misconduct at UNSW@ADFA are available online at [www.unsw.adfa.edu.au/student/misconduct](http://www.unsw.adfa.edu.au/student/misconduct)

## 3. Student Misconduct

### 3.1 University Rules and Codes of Conduct

While the University has not formulated a formal general code of conduct, it has defined rules and good practice for many activities. That is, a number of areas within the University have specified rules and codes of conduct for particular activities and for the use of facilities.

There are, in addition, University rules governing student misconduct. These are described below.

### 3.2 What is Student Misconduct?

Student misconduct includes behaviour of a kind that impairs the reasonable freedom of other persons to pursue their studies or research or to participate in the life of the University.

It includes such activity as:

- a) breach of any rule relating to student conduct in the University;
- b) conduct which unduly disrupts or interferes with a class, a meeting or any other official activity within the University;
- c) conduct detrimental to University property, such as stealing, destroying or deliberately damaging laboratory equipment;
- d) stealing, destroying, impairing the accessibility of, or defacing any part of the University Library collection;
- e) using University computing or communications facilities in a manner which is illegal or which will be detrimental to the rights and properties of others;
- f) acting so as to cause students or staff or other persons within the University to fear for their personal safety;

- g) refusing or failing to identify oneself truthfully when so required by a member of the academic staff or other officer of the University.

### 3.3 Penalties

The following penalties may apply:

- a) a student who commits a breach of the University rules or damages University property (including, but not limited to fittings, fixtures, equipment, facilities, trees, plants, shrubs and lawns) shall be guilty of a breach of discipline and shall be liable for the payment to the University of a fine not exceeding \$1,000;
- b) a student who misuses University Library facilities, or computing or communications facilities, shall be guilty of a breach of discipline and shall be liable for the payment to the University of a fine not exceeding \$1,000 and/or restriction or withdrawal of borrowing or access privileges;
- c) fines and other penalties may only be imposed under these Rules by the Rector on behalf of the Registrar and Deputy Principal, or a person who holds a written delegation from the Registrar so authorising her or him;
- d) it shall not be necessary for the University to prove in any case that it has suffered financial or actual loss;
- e) the University may withhold any benefit (including any degree, diploma or result) from a student until any penalty imposed under these Rules has been discharged;
- f) students adversely affected by determinations made and penalties imposed under this rule may appeal to the Vice-Chancellor. The appeal must be in writing and lodged within fourteen days of the student receiving notification of the adverse determination. Such notification shall include notice of the student's right of appeal. In all other respects, action under this rule is final.

In addition, in situations where it is considered that students present a threat of destruction to University property and/or disruption of academic instruction, assessment, examinations, and the proper functioning of the University, they may be temporarily suspended from part or all of the University.

### 3.4 Student Misconduct Procedures

The University has detailed procedures for dealing with allegations or complaints of student misconduct. The full text of the Council resolution on student misconduct, which contains details of these procedures, can be obtained from the UNSW web site: [www.my.unsw.edu.au/student/academiclife/assessment/StudentMisconductRules.html](http://www.my.unsw.edu.au/student/academiclife/assessment/StudentMisconductRules.html)

## 4. Plagiarism - Process At UNSW@ADFA

Students should expect that all work submitted for assessment will be checked for plagiarism, including the use of automated plagiarism-detection systems.

Where a case of suspected plagiarism is identified, the following process will apply at UNSW@ADFA:

### 4.1 Investigation

In the first instance, a case of suspected plagiarism must be reported by the responsible academic staff member to the relevant Head of School for investigation. Depending on its severity, and whether or not this is a first offence, a case may be referred to the Associate Dean (Education).

For cases investigated by the Head of School, the Head of School will arrange a meeting with the academic staff member and the student, who may also bring along a witness or friend. Prior to the meeting, the Head of School will have clearly identified to the student the nature of the suspected plagiarism.

A similar process will apply for cases investigated by the Associate Dean (Education).

### 4.2 Penalties

Where a case of plagiarism is substantiated and dealt with at UNSW@ADFA, penalties can include:

- the student receiving a reduced mark (possibly zero) in a piece of assessment,
- the student failing the course.

The penalty awarded will depend on the severity of the plagiarism and whether or not this case is a first offence.

At the discretion of the Associate Dean (Education), the matter can be dealt with under the UNSW Student Misconduct Rules and penalties referred to under section 3 above can apply.

### 4.3 Reporting

Where a case of plagiarism is substantiated:

The student's name will be recorded by the relevant School and by Student Administrative Services.

The Associate Dean (Education) will be informed.

For Bachelor degree students, the Deputy Commandant will be informed.

For postgraduate coursework students enrolled in Defence-funded programs (e.g. ATSOC, RAAF Retention Scheme, etc.), the relevant program sponsor will be notified.

For postgraduate research students, the Associate Dean (Research) will be notified.

Students should be aware that cases of plagiarism are regarded very seriously by the University and the Military staff at ADFA. Where a case is substantiated involving a Bachelor degree student, the Deputy Commandant will take appropriate action according to current Defence policies.

### 4.4 Assisting Another Student to Commit Plagiarism

Any student who assists another to commit plagiarism will be subject to the same procedures and penalties as the student who committed the plagiarism.

## Admission to Degree (Graduation)

UNSW@ADFA Conferring of Degrees Ceremonies are held each year in December. It is not normally possible for undergraduate and postgraduate coursework students from UNSW@ADFA to have their degree conferred at a Conferring of Degrees Ceremony conducted by UNSW at a campus other than UNSW@ADFA.

Students whose current program of study will enable them to complete all requirements for the degree should lodge with Student Administrative Services the form Intention to Graduate by the specified date. Forms are available from Student Administrative Services or on the UNSW@ADFA Student Gateway.

Details concerning the Conferring of Degrees Ceremonies (including information about academic dress) will be made available on the UNSW@ADFA Student Gateway.

## Attendance at Classes

Students are expected to be regular and punctual in attendance at all classes in the programs and courses in which they are enrolled.

If through illness or other unavoidable cause a student is prevented from attending classes for an extended period or is otherwise unable to meet the course requirements, he or she may be excused by the relevant Course Convenor for not attending classes for a period of up to one month. Explanations of absences or requests for permission to be absent for such causes must be made in writing to the relevant Course Convenor and, when appropriate, accompanied by a medical certificate.

If the period of absence includes an examination or other form of assessment, this should be stated in the student's application.

The onus is upon the student to advise the relevant member of staff of unavoidable absences from classes.

In certain circumstances, a student who is repeating a course may be exempted from attending some classes in that course.

If students attend less than eighty per cent of their possible classes they may be refused final assessment and may receive a fail result for the course.

For courses delivered in distance mode or another form of flexible delivery, the course authority may define corresponding conditions.

## Course Availability

UNSW@ADFA reserves the right to cancel courses for which there are insufficient enrolments (normally a minimum of six is required). Advice of cancellation would normally be given to students within the first two weeks of teaching in a given session.

## Equity and Equal Opportunity (EEO)

Under the Federal Racial Discrimination Act (1975) and Sex Discrimination Act (1984), Disability Discrimination Act (1992) and the New South Wales Anti-Discrimination Act (1977), the University is required not to discriminate against students or prospective students on the grounds of age, sex, marital status, pregnancy, race (including nationality, descent, ethnic, ethno-religious or national origin or immigration), colour, homosexuality, religious or political affiliation, views or beliefs, transgender or transsexuality or disability. Under The University of New South Wales Act (1989), the University declares that it will not discriminate on the grounds of religious or political affiliations, views or beliefs.

As well as recognising its statutory obligations as listed, the University will eliminate discrimination on any other grounds which it deems to constitute disadvantage. The University is committed to providing a place to study free from harassment and discrimination, and one in which every student is encouraged to work towards her/his maximum potential. The University further commits itself to course design, curriculum content, classroom environment, assessment procedures and other aspects of campus life which will provide equality of educational opportunity to all students.

The University will encourage the enrolment of students who belong to disadvantaged groups through programs such as the ACCESS Scheme.

For further details visit [www.unsw.adfa.edu.au/about/equity/](http://www.unsw.adfa.edu.au/about/equity/) or contact:

Equity Manager  
Telephone: (02) 6268 8218  
Email: [p.maclean@adfa.edu.au](mailto:p.maclean@adfa.edu.au)

## Examinations

End-of-session examinations at UNSW@ADFA are held in June—July and October—November.

A provisional timetable indicating the dates and times of examinations is issued well in advance of each examination period and will be available on the UNSW@ADFA Student Gateway. Students are advised to study the provisional timetable, and they must notify Student Administrative Services immediately of any clashes in their examination programs.

The final timetable indicating the dates, times, locations and authorised aids is also available on the UNSW@ADFA Student Gateway approximately two weeks before the examination period begins. Instructions to Candidates are issued with the final timetable. All students are expected to read the instructions before the examinations begin and to observe them. Students must be available for examination on any day in the published examination period.

Misreading the timetable is not an acceptable excuse for a student who fails to attend an examination.

In the assessment of student's progress, consideration is given to work in laboratory and class exercises and to any term or other tests given during the year, as well as to performance in written examinations.

### Use of Computers and Electronic Calculators in Examinations

The use of electronic devices of calculation and data retrieval will only be permitted in examinations when specifically prescribed by the examiner. In these circumstances students will be required to comply with the examiner's directions concerning the properties and use of the device.

Students are reminded that the use of calculators in examinations is governed by the rules for the conduct of the examination. Misuse of the calculator, or any other electronic device, may be considered as a form of academic misconduct. In particular, the use of the stored memory capability of programmable calculators in closed-book examinations, except where expressly allowed by the examiner, is contrary to the conduct of such examinations. The University does not provide computers or electronic calculators of any kind described in this rule for use in examinations, although some Schools may make them available in special circumstances.

### Conduct of Examinations

Examinations are conducted in accordance with the University's rules and procedures, as follows:

1. Candidates are required to obey any instruction given by an examination supervisor for the proper conduct of the examination.
2. Candidates are required to be in their places in the examination room not less than fifteen minutes before the time of commencement.
3. No bag, pencil case, mobile telephone or other communications equipment, writing paper, blotting paper, manuscript or book, other than a specified aid, is to be brought into the examination room. This includes mascots.
4. Candidates are required to sit in the seat allocated to them by an examination supervisor.
5. Candidates are required to bring their valid student ID card to each examination and place it on the left-hand top corner of their desk for the duration of the examination.
6. Candidates shall not be admitted to an examination after thirty minutes from the time of commencement of the examination.
7. Candidates shall not be permitted to leave the examination room before the expiry of thirty minutes from the time the examination commences, or within ten minutes of the conclusion of the examination.
8. Candidates shall not be re-admitted to the examination room after they have left it unless, during the full period of their absence, they have been under approved supervision.
9. Candidates shall not by any improper means obtain, or endeavour to obtain, assistance in their work, give, or endeavour to give, assistance to any other candidate, or commit any breach of good order.
10. All answers must be in English unless otherwise stated. Foreign students who have the written approval of the Manager, Student Administrative Services may use standard linguistic dictionaries.

11. Smoking, eating and drinking are not permitted during the course of examinations. Water may be provided by examination supervisors.
12. A candidate who commits any infringement of the rules governing examinations is liable to disqualification at the particular examination, to immediate expulsion from the examination room and to such further penalty as may be determined in accordance with the By-laws.

### Writing in Examinations

Candidates are permitted to take pens, pencils and erasers into the examination room, but are advised that all answers must be written in ink. Except where expressly required, pencils may only be used for drawing, sketching or graphical work.

## Grievances

### Procedures for the Resolution of Student Grievances and Disputes

The University of New South Wales recognises that all decisions which affect a student's standing or progress in a program or course must be made fairly and must be based on appropriate academic criteria.

### Guidelines

The University is committed to providing a harmonious work and study environment, and will listen seriously to complaints and resolve them quickly if possible. The resolution procedures ensure that students are able to air legitimate complaints knowing that ad hoc, vindictive or arbitrary action will not be taken against them or the staff complained about. By providing a clear set of procedures, it is hoped that grievances can be dealt with satisfactorily and expeditiously, and will prevent a minor grievance from becoming a major problem.

These procedures apply to all enrolled students and to any decisions which may affect a student's standing in a course or program. Many of these decisions concern assessment, but they may relate to other matters which could adversely affect a student's standing such as the granting of advanced standing, discontinuation, supervision arrangements, access to facilities, the award of scholarships and prizes, and decisions regarding fees. Research students may have a grievance concerning a thesis topic, access to facilities or supervision.

As there are many different decision-making processes in the University potentially affecting academic standing, not all of them can be covered specifically in one set of procedures. It is however the University's intention that a student's right to resolution of a grievance or dispute is not limited by this statement of procedures. Existing appeal procedures established for the re-enrolment rules for undergraduate students or for decisions on allegations of academic misconduct are not affected by these procedures. Information on these procedures is available earlier in the ADFA Handbook, or from Student Administrative Services.

A student is required to make his/her grievance known within a reasonable time frame, normally within a month of the decision being communicated.



The University expects that student grievances and claims of unfair treatment should in most instances be able to be resolved through informal discussion and consultation without recourse to formal appeal. However, where resolution is not possible, the University is committed to listen seriously to complaints and resolve them quickly, if possible, by the following procedures.

## Grievance Procedure

### Step 1

The student should attempt to resolve the grievance with the staff member(s) concerned within a reasonable time frame.

### Step 2

If the grievance is still unresolved, it should be directed to the Head of School (or other responsible officer nominated by the Rector) who will attempt to resolve the grievance informally. Reasons should be provided by the Head of School (or nominated officer) for any recommendation or decision in respect of the matter.

### Step 3

If the matter is not satisfactorily resolved at this stage, the student should refer the grievance to the Registrar or Manager, Student Administrative Services.

### Step 4

Except when insufficient or unfounded reasons have been given by the student to support the complaint, the Registrar will take the complaint in writing, inform the respondent officially, commence an investigation, including reference to the Rector or Presiding Member of UNSW@ADFA Academic Board, and give an answer (including reasons) normally within 7 days.

### Step 5

If the student is still dissatisfied, an appeal may be lodged in writing with the Presiding Member of the Postgraduate or Undergraduate Education Committee within 14 days of receiving the Registrar's notification. The Presiding Member may decline to take action in cases where insufficient or unfounded reasons have been given by the student and shall inform the student accordingly.

If the matter has not already been considered by the Postgraduate or Undergraduate Education Committee, this appeal will be heard by an Appeal Sub-Committee, empanelled for the purpose by the Presiding Member of the appropriate Education Committee. The Presiding Member will appoint as Chair of the Appeal Sub-Committee a member of the corresponding Education Committee.

If the matter has already been considered by the Postgraduate or Undergraduate Education Committee, this appeal will be heard by an Appeal Sub-Committee of the Academic Board, empanelled for the purpose by the Presiding Member of the Board. The Presiding Member will appoint as Chair of the Appeal Sub-Committee a member of the Academic Board.

The Appeal Sub-Committee will consist of at least three members, one of whom will be a student. The student member will be drawn from the Academic Board.

No member of the Appeal Sub-Committee will have been associated with either the original decision or any earlier step in the appeal process.

Within two months the Appeal Sub-Committee will make a decision on the matter. Decisions made by the Appeal Sub-Committee will be reported annually to the Academic Board. There will be no further right of appeal.

Each stage is to be handled expeditiously.

## Leave of Absence

### Discontinuation and Program Leave

Leave from a program of study may be granted to undergraduate or postgraduate students. Leave is generally restricted to a total of two sessions; applications for leave in excess of two sessions will be approved only in exceptional circumstances at the discretion of the program authority and Registrar's Nominee.

A request for leave should be made in writing using the Program Leave/Program Discontinuation form available from Student Administrative Services or from the Student Gateway at [www.unsw.adfa.edu.au/student/forms](http://www.unsw.adfa.edu.au/student/forms). A student who is granted leave does not have access to university resources and services (such as Academy Library and email services) during their leave of absence.

Leave should be sought prior to the census date: 31 March for Session 1 or whole-year leave, or prior to 31 August for Session 2 leave.

A student who discontinues a program after the census date for a session retains an enrolment record for that session and is subject to the rules on re-enrolment. A student who discontinues after the Session 1 census date may apply for leave for Session 2.

A student whose application for leave is rejected or who does not resume study at the end of the approved leave period, or who fails to enrol or seek leave for a particular session, must formally apply, in the usual manner, for re-admission to the program.

## Occupational Health and Safety Policy (OH&S)

Each student is responsible for:

- complying with all legislation and all relevant Defence and/or UNSW@ADFA policies, procedures and instructions;
- taking action to avoid, eliminate or minimise hazards; reporting all hazards, accidents, incidents and dangerous occurrences in accordance with relevant Defence and UNSW@ADFA policies and procedures, and statutory requirements;
- making proper use of all safety devices and personal protective equipment;
- not creating or increasing a risk to the health and safety of themselves or any other any person at the workplace;

seeking information or advice regarding hazards and procedures, where necessary, before carrying out new or unfamiliar work;

being familiar with and following emergency and evacuation procedures; and

being familiar with the location of first aid kits, emergency control personnel and emergency equipment, and if appropriately trained, using the emergency equipment.

Some of the information above has been reproduced from or adapted from the section; General Information: Rules and Procedures in the current Calendar of The University of New South Wales. You are advised to consult the Calendar for further details.

## Privacy

The University is committed to ensuring that the privacy of students and the collection, storage and use of personal information is undertaken in accordance with the NSW Privacy and Personal Information Protection Act 1998. Further information on privacy is available from Student Administrative Services or online at [www.unsw.adfa.edu.au/governance/policies/privacy](http://www.unsw.adfa.edu.au/governance/policies/privacy)

## Provision of Information on Student Assessment

The University is committed to a policy of openness regarding exchange of information in matters involving the assessment of students. To this end:

- (a) Course authorities are responsible for ensuring that there is provided for each course a clear written statement of expectations, which should include: a statement of objectives of the course; its assessment plan, including weights allocated to each significant assessable component and related submission dates; the kind of evidence required for consideration to be given to late submissions; attendance, timetable and other requirements; to be presented at the first class of each session/term, recognising always the ability to negotiate changes with the students concerned within the first week.
- (b) All items of assessment completed during session should be marked promptly and returned to students with a mark or grade and, where appropriate, comments. Course authorities where appropriate should provide information on the distribution of results in all items of assessment so that students can gauge their own performance against that of the other members of the class.
- (c) Final composite marks in courses as determined by the Assessment Review Groups should continue to be provided to students on result notifications.
- (d) Final examination scripts (other than those returned to students) are to be retained in the School for six months. Students should have access to their own scripts and be able to consult the examiner or the course authority on their performance. Faculties and boards of studies may determine the conditions under which access may be granted.

- (e) Where examination question papers or other forms of assessment need to be kept confidential (e.g. multiple-choice question papers where questions are re-used in later examinations) arrangements should be made for students to receive advice on their own performance with reference to their own examination script but in a way which does not prejudice the examination mode.
- (f) In the case of the examination of theses and project reports, the examiners' reports should be released to the student, following determination of the student's results. The names of examiners, while remaining undisclosed prior to assessment, should be released subsequently unless a particular examiner requests that this information be not released.

## Restricted Assessment Week

"Restricted Assessment Week" is the period during which in-class revision can take place but staff are expected to avoid, as far as possible, the introduction of new material and no assessment worth more than 5% of the assessment for a course can be scheduled. No Military Training is conducted in the week preceding the exams.

## Results

To obtain results students need to access myUNSW at [www.myunsw.edu.au](http://www.myunsw.edu.au)

Passes in courses are graded as follows:

### High Distinction

an outstanding performance

### Distinction

a superior performance

### Credit

a good performance

### Pass

an acceptable level of performance

### Satisfactory

satisfactory completion of a course for which graded passes are not available

### Pass Conceded

may be granted provided that a student's overall performance is considered to warrant such a concession; it will allow progression to another course for which the first is a pre-requisite.

Further information is available from the UNSW@ADFA Student Gateway at [www.unsw.adfa.edu.au/student/current/assessment.html](http://www.unsw.adfa.edu.au/student/current/assessment.html)

## Review of a Result

A student may make application in writing to the Manager, Student Administrative Services for the review of a result. If the Manager, Student Administrative Services determines that a review of a result is justified, the request will be forwarded to the Head of School for action. The Head of School will prepare a recommendation for the Manager, Student Administrative Services.

A review of a result may take one of two forms:

1. **Checking a mark** - an administrative check that all marks have been included in the final composite mark;
2. **Reassessment** - an academic re-assessment of a piece of work.

In either case the review may result in the mark going up or down.

The application must be submitted not later than fifteen working days after the return of the piece of work or from the date of publication of results, whichever is earlier.

All marked written work returned to students must be kept in case it is needed for re-marking.

The student will be advised of the outcome of the application in writing.

### Checking a Mark

The course authority shall ensure that all components of the assessment have been assessed and a mark assigned. This is not a reassessment of a student's standard of knowledge and understanding of, and skills in, the course. It is rather a search for arithmetic error in arriving at the composite mark and for gross and obvious error in assignment of marks in components of the final composite mark.

### Reassessment

Students may apply to have a piece of work re-marked, but must first discuss their performance in it with the course examiner. If students still have reason to believe that the mark they have received does not reflect their performance they may apply for reassessment. Students are required to give reasons to justify their request. A request may be refused where insufficient reasons are put forward.

## Special Consideration

This advice is based on the UNSW 'Special Consideration – Illness & Misadventure' policy, which is available on the web at:  
[www.my.unsw.edu.au/student/atoz/SpecialConsideration.html](http://www.my.unsw.edu.au/student/atoz/SpecialConsideration.html)

On some occasions sickness, misadventure, or other circumstance beyond your control may prevent you from completing a course requirement or attending or submitting assessable work for a course. It is also possible that such situations may significantly affect your performance in an assessable task. The University has procedures that allow you to apply for consideration for the affected assessments. Depending on the circumstances, the University may take action to allow you to overcome the disadvantage; e.g. give you additional assessment or extend a deadline.

You should note that submitting a request for consideration does not automatically mean that you will be granted additional assessment, nor that you will be awarded an amended result. For example, if you have a poor record of attendance or performance throughout a session/year in a course you may be failed regardless of illness or other reason affecting a final examination in that course.

### What Qualifies for Special Consideration Application:

For Assessment Items valued at over 20% of total assessment, where you meet the criteria you can apply for Special Consideration.

For Assessment Items valued at less than 20% or where you have missed class time or class quizzes you should address your concerns directly to your Course Convenor.

Where you think you might need extra time in an exam (e.g. If you have a broken arm and need more writing time) or you are concerned about exam performance please see your Course Convenor to make arrangements. Speak to your Course Convenor as early as possible to allow time to make suitable arrangements.

### Criteria for Special Consideration for Assessment:

Where academic work has been hampered to a **substantial degree** by illness or other cause. A problem involving **three consecutive days** or a total of five days within the teaching period of a semester is considered sufficient grounds for an application. In exceptional circumstances an application may be accepted outside these limits.

The circumstances have to be **unexpected and beyond your control**. Students are expected to give priority to their University study commitments and any absence must clearly be for circumstances beyond your control. Work commitments are not normally considered a justification.

An absence from an examination should be supported by a **medical certificate or other document** which clearly indicates you were unable to be present.

A student absent from an examination or who attends an examination and wants to request Special Consideration for Assessment is normally required to provide a **medical certificate dated the same day as the examination**.

An application for Special Consideration for Assessment has to be **provided within three working days** of the assessment to which it refers. In exceptional circumstances an application may be accepted outside the three-day limit.

You should note that Consideration requests will **not** be considered:

- If the application is not made on the appropriate form.
- If all the key information is not provided.
- If more than three days have elapsed since the assessment for which Consideration is sought.
- If the condition or event is not related to performance or is considered not to be serious.

In exceptional circumstances the University may waive these requirements, e.g. if an accident or sudden illness occurred which required your immediate hospitalisation for longer than three days.

### Satisfactory Documentation

To give the University sufficient and appropriate information on which to base its decision about your request, you must support your application with certified official documentation which normally contains the following key information:

The date/s on which you were seen by the professional/ authority providing your official documentation.

The date of the illness or misadventure or the duration of the illness or misadventure.

The professional's/authority's assessment of the severity of your illness or misadventure and opinion of the likely effect on your capacity to undertake the assessment task/s concerned.

Within the limits of confidentiality, the certificate should describe the nature and seriousness of the student's problem, so that an assessment of the possible effects of the illness or accident on performance can be made.

Certificates signed by family members are **not** acceptable.

### **What Happens After You Make the Application?**

If your application meets the University's criteria for acceptance, it is date stamped, a copy is taken and returned to you. Your application is filed on your student record.

Details, including the information provided by you, are made available to the relevant course authority/School/s. The University's procedures ensure that confidentiality of this information is maintained.

The School/s considers your application, and you are advised of the outcome.

Notification of the outcome will be via the contact details held on *myUNSW* - incorrect contact details are your responsibility. Failure to undertake any additional action required by the School (which will be included in your notification) will result in forfeiture of any additional assessment granted to you.

### **Application Assessment**

On the basis of the information provided in your application, a decision is made regarding the appropriate response in your particular case. The following may be taken into account:

- Your performance in other items of assessment in the course.
- The severity of the event.
- Academic standing in other courses and in the program.
- History of previous applications for Special Consideration for Assessment.

### **What Outcomes You Can Expect**

If an application is accepted, the following action may ensue:

- No action.
- Additional assessment or a supplementary examination. Additional assessment may take a different form from the original assessment. If you are granted additional assessment, the original assessment may be ignored at the discretion of the course authority. Consequently, a revised mark based on additional assessment may be greater or less than the original mark.
- Marks obtained for completed assessment tasks may be aggregated or averaged to achieve a percentage.
- The deadline for assessment may be extended.
- Discontinuation from the course. This is unlikely to occur after an examination or final assessment has taken place.

# STUDENT SERVICES

## Distance Education Mode

UNSW@ADFA is progressively moving to more flexible modes of learning in order to provide high-quality teaching and learning experiences. You may encounter face-to-face teaching, print-based materials, and increasingly the use of a variety of technologies and media, including Web-based technologies and digital information sources as you progress through your courses. These approaches can provide you with more flexibility, including choice over the learning process and easier access to library resources both on and off campus.

### Distance Education Learning Materials

If you are studying a course that does not require regular classroom attendance you may be regarded as a distance education student. You are likely to receive packaged learning materials and information about accessing online resources from Educational Technology Services. For any queries about these materials, please contact:

Off-Campus Program Manager

Educational Technology Services

Telephone: (02) 6268 6002

Email: dist-ed@adfa.edu.au

Students involved in ACSC, DSTO or the RAAF Engineers Retention Scheme may receive similar materials but should contact the Contracts Officer in Student Administrative Services for any queries.

For information about library services available to distance education students, please refer to the off-campus students section Library web site [www.unsw.adfa.edu.au/library](http://www.unsw.adfa.edu.au/library).

Note: Distance Education examinations are co-ordinated through Student Administrative Services, and examination details will be sent to each student as needed.

## Enrolment Assistance

### Enrolment

On their entry to the Academy, midshipmen and officer cadets must enrol formally as undergraduate students of The University of New South Wales. Acceptance as a member of the University for all students implies an undertaking on the part of each student to observe the regulations, by-laws and other requirements of the University in accordance with the declaration he or she signs at the time of application for admission and enrolment. Such regulations, etc are published in the current Calendar of The University of New South Wales which is available for inspection at Student Administrative Services.

First-year undergraduate students attend an Academic Orientation and Enrolment Day soon after their arrival at the Academy. On this day advice about courses and programs is available from academic staff of all UNSW@ADFA schools.

New postgraduate students will be advised by letter concerning the method of enrolment.

All students must re-enrol each year for the full academic year. Students who fail to enrol in accordance with advertised procedures or who enrol after the nominated date may incur a significant penalty fee.

### Non-award Enrolment

Non-award students are students who are enrolled in course/s but are not proceeding to a degree, diploma or graduate certificate of the University.

Enrolments by non-award students are governed by the following rules:

- (1) Enrolment in a particular course or courses as a non-award student may be permitted, provided that in every case the Head of School (or nominee) offering the course considers that the student will benefit from the enrolment and provided also that accommodation is available and that the enrolment does not prevent a place in that course being available to a student proceeding to a degree or diploma.
- (2) A student who is under suspension or exclusion from any course in the University may not enrol in that course.
- (3) A student who is subsequently admitted to a program of the University for which course completed as a non-award student form a part, may receive standing for those courses.
- (4) As a general rule the University does not permit non-award students to enrol in first-year undergraduate courses.

## Information Technology

### ID cards

Your ID card may be needed at examinations, to borrow from the library, or to enter buildings and other secure facilities at ADFA. Distance Education and local students can have their photo taken and pick up their ID card from ICTS within a few minutes. Off-campus students will need to send a high-quality jpg digital image or passport photo to ICTS so that the ID card can be produced and sent to you in the mail.

**If your card is lost or stolen** contact ICTS. You will need to complete a form and pay a \$10 replacement fee.

**If your card has worn out** and become so faded, bent or chipped that it cannot be used anymore, please take the card to the ICTS service desk where it will be replaced at no charge.

Your ADFA card is **not indestructible** and significant effort has been made to source cards of the highest quality and strength, however cards can be damaged with misuse. Please treat the ADFA card as you would your credit or EFTPOS cards and the card should give you a long and trouble-free life.

- Do not bend your card.
- Do not allow your card to be rubbed on an abrasive surface.
- Do not immerse your card in any type of fluid.
- Do not use your card as a screwdriver.
- Avoid strong magnetic fields.
- Avoid extreme temperatures.

### ICTS help

The ICTS service centre is available to help with lost or stolen cards, change passwords and to assist with access problems to WebCT. The service centre also provides printed copies of user guides and tip sheets to assist you with various on- and off-campus facilities.

You may be able to avoid or resolve some ICTS issues by considering the points below or consulting the electronic Tip Sheets and other information on the ICTS web site [www.unsw.adfa.edu.au/ict/](http://www.unsw.adfa.edu.au/ict/)

If you still need assistance, the ICTS service centre staff will assist. Please contact the [helpdesk@adfa.edu.au](mailto:helpdesk@adfa.edu.au) or by telephoning (02) 6268 8140.

Note: some schools have their own helpdesk to assist with the use of school-based hardware and course-specific software.

### Passwords at UNSW@ADFA

Because UNSW@ADFA is part of the University of NSW and a College separate from the main campus, it maintains two information systems; one covering access to an individual student's personal information, and the other providing email and access to Web-based flexible learning and other College-based services.

The same account name (ID) accesses both systems. Your login ID is z followed by your student ID number (e.g. z1234567).

**UNIPASS** allows students to access their personal student record over the Web. The first time you want to access MyUNSW, you need to create your own UNIPASS password by following the instructions at [www.unsw.adfa.edu.au/student/commencing/](http://www.unsw.adfa.edu.au/student/commencing/). You **MUST** have your student number or UAC number to establish your UNIPASS.

You can then use your UNIPASS to go directly to your student records at [www.my.unsw.edu.au](http://www.my.unsw.edu.au)

**ADFAPASS** is used for access to ADFA email, for logging on to WebCT virtual classroom, and to access online library resources and services. This password is provided (via mail) immediately after you enrol in courses for the first time.

### Changing passwords

To change your UNIPASS or ADFAPASS at any time, go to [www.unsw.adfa.edu.au/ict/ict\\_online](http://www.unsw.adfa.edu.au/ict/ict_online) and log in using your current details. Please note that you will be redirected to the 'Do-It-Yourself' pages at UNSW to change your UNIPASS.

### Email services

The University uses email as the primary form of communication for both staff and students, and all UNSW@ADFA students are provided with an ADFA email account when they enrol. This account can be accessed from any Internet enabled computer. **It is important to check this email account** on a regular basis as it will be used by different areas of the University to both send information and communicate directly with individual students. Information in these messages may require you to respond, and could cover areas such as re-enrolment, graduation and deadline warnings, and library notices.

There are important benefits in using the ADFA email account rather than using free email services that do not permit, or cause problems with downloading large electronic documents and file attachments. This creates problems when downloading electronic library materials, such as copies of recommended readings increasingly available for all courses only in a digital format.

Information about how to configure your email software is available at: [www.unsw.adfa.edu.au/ict/tip\\_sheets](http://www.unsw.adfa.edu.au/ict/tip_sheets)

Contact Information Communication and Technology Services (ICTS) via email [helpdesk@adfa.edu.au](mailto:helpdesk@adfa.edu.au) or telephone (02) 6268 8140 if you do not have, have forgotten or if you are having difficulties establishing, or using either your ADFAPASS or UNIPASS.

### Accessing online learning

WebCT is the learning management system (LMS) used by the University. You can access WebCT from the Student Gateway at [www.unsw.adfa.edu.au/student/](http://www.unsw.adfa.edu.au/student/) This log-in page also gives you access to:

- an online tutorial;
- an online tour;
- student online help; and
- a printable (pdf) guide 'Getting started with online courses'.

Log in to WebCT using a lower case "z" followed immediately by your student ID, and your ADFAPASS.

## On-campus computing

ICT provides two 24-hour computer laboratories located under Lecture Theatres North. There is one PowerMac lab and one PC lab. Both have printing facilities (but you will need to supply your own paper). These labs are available to students who do not have access to their own personal computer and can be accessed by swiping your student ID card.

Other special-purpose computer laboratories are managed by Schools. Please ask the staff in the buildings where you are working for a description of available facilities and the specific access information needed to use them.

If you are using any UNSW@ADFA computing facilities you will be expected to observe the ethics and responsibility guidelines available from [www.unsw.adfa.edu.au/ict/policies](http://www.unsw.adfa.edu.au/ict/policies)

## Connecting personal computers

Network connections in the accommodation areas and postgraduate research rooms (located in the Academy library) enable students to connect their own computers to the Academy network. Contact the service centre for further information.

## Personal computer requirements

All students are expected to have access to a personal computer to support their studies, as courses at ADFA increasingly have an online component. Many of the resources available from the Academy Library are only available in a digital format. Similarly all students are expected to arrange their own Internet access for off-campus computers.

This is needed to provide:

- access to UNSW@ADFA information and support services;
- general communication;
- access to library information and services; and
- participation in online learning.

Establishing a telecommunications link to ADFA is a student's responsibility. If you use a modem to connect to ADFA via the telephone network through your own internet service provider (ISP), you will be responsible for the ISP charges. It is not usually possible to achieve effective access to Internet services via the telephone network if the line from your modem passes through a PABX en route to the main telephone network.

If you plan to use computers located at Defence establishments, you will need to arrange for appropriate local-user rights to gain access to UNSW@ADFA servers. In many cases, "firewalls" will make it very difficult or impossible to gain access to the Internet from within Defence and other government organisations, and you will need to establish separate access outside the Defence Internet environment.

Students are recommended to have the following minimum hardware configurations for any computer equipment:

- Mac Power PC eMac, OSX, 800MHz, 256MB RAM; or Pentium PC, Windows 2000/XP, 1.6+ GHz, 256MB RAM; and
- A 56Kbps or faster modem or network connection.

Typically, the computer should also have a CD ROM drive, sound card and a compatible printer.

Recommended software for general communications includes:

- Microsoft Office 2000 or later, or compatible applications with translators;
- at least Internet Explorer 6, Netscape Navigator 7 or mozilla 1.7;
- Adobe Acrobat Reader or e-Book Reader;
- Macromedia Shockwave and Flash plug-ins;
- QuickTime player and Real player; and
- Anti-virus software (available free from [www.unsw.adfa.edu.au/ict/software](http://www.unsw.adfa.edu.au/ict/software) if you are an on-campus student).

Additional software may be required for specific courses, and you may need an updated java plug-in to use some WebCT tools.

You will also be expected to configure your Web browser to use the relevant software to view documents that you download from the Web.

## Online learning resources

While some UNSW@ADFA courses are conducted almost entirely online, online participation is optional in others. Printed 'Course Information' booklets describe how distance education students are expected to use the course website and its associated communication tools. For details of how to access WebCT courses and associated online training and information, see Accessing Online Learning below.

Within the web site for a course, students may be able to access a range of online library resources and services, many of which have been developed specifically to assist students who are off campus. These resources can include:

- course materials that have been digitised by the university (for example, articles from journals or chapters of books normally found in the Course Reserve collection, as well as illustrations, etc);
- links to recommended Internet resources, both to 'free' materials and also to a wide range of electronic journals and databases (many with full text) that the Academy Library has subscribed to and which are only available to staff and students of the University; and
- an online reference service, accessed via the 'Ask Us' button. More information is available on this service at: [www.unsw.adfa.edu.au/library](http://www.unsw.adfa.edu.au/library)

Free access using high-speed links has been arranged by ICTS for students undertaking collaborative work with the Australian National University, Australian Catholic University, Signadou or University of Canberra.

## International Students

About 150 international students are enrolled in non-award, postgraduate coursework and research programs. These students include both sponsored military personnel and self-funded civilians. There are also approximately 30 cadets and midshipmen completing undergraduate studies. Students are met upon arrival and can have arrangements made for temporary accommodation. An orientation program and an intensive academic preparation course are available for international postgraduate students prior to the start of formal classes. Staff in Student Administrative Services are familiar with the difficulties faced by international students and their families and are available to offer assistance or to refer students where appropriate.

For any international student matters please contact:  
International and Research Students Officer  
Student Administrative Services  
Telephone: (02) 6268 6006  
Email: [international@adfa.edu.au](mailto:international@adfa.edu.au)

## Library Services

### The Academy Library

The UNSW@ADFA Academy Library ensures the provision and promotion of access to knowledge and information. It supports research, undergraduate and postgraduate study within UNSW@ADFA and the military study and training programs of the Academy through a large array of on-campus and electronic resources.

### Library collections

The Library's collections include a major national collection in the areas of international defence, strategic studies and military history. Major ACT collections in the areas of engineering, information technology, management and Australian literature are included in the Library's holdings of approximately 447,742 volumes. There are current journal subscriptions for approximately 32,436 titles, with the majority available electronically. The Library's Special Collections area focuses on Australian military history, Australian literature, theses and manuscript collections of major national significance.

### Library online services

The Academy Library has an extensive web site, which provides access to a wide variety of resources and services. The online catalogue provides links to print, digital and web-based material, while a large range of databases and electronic journal services are able to be searched simultaneously to identify material on a particular topic. The Library's home page is located at [www.unsw.adfa.edu.au/library](http://www.unsw.adfa.edu.au/library). Library resources and services are also available to off-campus students.

### Inter-library loans

Inter-library loan and document delivery services are available to obtain material not held by the Academy Library.

## Help Services

Assistance in using the Library's services and resources can be obtained from the Library's Service desk on the ground floor, by telephone (02) 6268 8116 or by using the 'Ask Us' button that appears on every Library web page. An enhanced help service will be implemented for Session 1, 2006.

## Information Literacy

Library staff conduct classes to help students learn how to work within a complex information environment. These range from orientation classes to tutorials on using the resources that are available from the Library. Please see the Library homepage for more details.

## Reciprocal library rights

The Library has a reciprocal borrowing agreement with the other university libraries in the ACT and participates in the university libraries Australia scheme. This enables students and staff to apply for borrowing privileges at other Australian university libraries. Other persons may use the Library and can obtain borrowing rights on a fee-paying basis.

## Media Assistance

### Media and multimedia assistance

Educational Technology Services (ETS) provides a wide range of services through the group's professional expertise in Graphic Design, Multimedia and Video Production, Photography, Venue support, Document Production, Flexible Learning and WebCT support. Many production services are available to students at special rates (although commercial rates apply for work undertaken for non-academic or commercial purposes).

Visit [www.unsw.adfa.edu.au/ets/](http://www.unsw.adfa.edu.au/ets/) for more details of what is available, and for contact details, or call into ETS to discuss your particular needs. For specific queries, you can email [ets@adfa.edu.au](mailto:ets@adfa.edu.au).

### Printing assistance

You can request quotes or other assistance from the ETS front desk, for large or small print jobs, including colour printing, use of specialised paper types, and binding facilities. Note that you may be required to complete a copyright statement prior to printing.



## On-Campus Military Facilities

You will need to check your eligibility to use the following military facilities which are not routinely available to the public:

- Cadets' Mess
- Indoor sports centre
- Officers' Mess

## On-Campus Commercial Services

The commercial building on the ADFA campus provides a focal point for all commercial activities:

- Co-op Bookshop (Note that students studying off campus can order books by faxing an order form that will usually be included in your learning package)
- ADFA Café
- Two credit unions
- Hairdresser
- Electrical Store

## Orientation Programs

Commencing undergraduate students undertake a two day **Academic Orientation and Enrolment Program** within three weeks of arrival at the Academy. During this program, advice about programs and courses is available from academic staff, information and academic skills sessions occur and students are able to enrol in their courses.

The military organises its own intensive familiarisation program for first year cadets which culminates with **CDF Week**.

An **Orientation Evening** is conducted for postgraduate coursework students prior to the commencement of each session. In 2006, these evenings will be held on 15 February 2006 for students commencing in Session 1 and on 12 July 2006 for students commencing in Session 2.

Orientation sessions are also conducted for postgraduate research students by the Research and Research Training Office. Further information on these sessions is available by contacting the Research and Research Training Office on (02) 6268 8112.

## Program Administration (Student Administrative Services)

The role of Student Administrative Services is to provide quality administration to support and promote the academic programs of students and to enhance their educational experience at UNSW@ADFA.

### myUNSW

*myUNSW* is the Web interface to the UNSW student information system accessible to UNSW@ADFA students. Without you having to fill out paper-based forms or physically go to Student Administrative Services, *myUNSW* will enable you to:

- Re-enrol;
- Change your enrolment selections;
- View your timetable;
- Update your contact details;
- Obtain your course results;
- Print your academic record; and
- Check your financial status and pay any tuition fees.

To access *myUNSW* link go to [www.my.unsw.edu.au](http://www.my.unsw.edu.au) and log in using

- Your Student ID; and
- UNIPASS

### Student Records

Academic records of students at UNSW@ADFA are kept on *myUNSW*. Students may view their full academic record as an Academic Statement, which can be verified by Student Administrative Services for unofficial purposes. Official Academic Transcripts are issued to all graduates following the conferral of their degree. Additional transcripts may be requested at any time, but a charge is imposed.

### Change of Address

Students must ensure that their address on *myUNSW* remains current. All communications from the University will be addressed to students at their Session address. Graduating students must update their home address before leaving the Academy.

### Change of Degree

New first-year students enter the Academy on the understanding that they will take up the places allotted to them in particular programs of study. In exceptional circumstances a student may be permitted to enrol in a different program, provided there is a vacancy and provided he or she is appropriately qualified.

It may be possible for a student to transfer from one program to another at the end of the first-year provided that he or she is appropriately qualified. A student permitted to transfer will either re-enrol as a first-year student in the new program or enrol as a second-year student but with a restricted choice of program.

Students seeking to change degree should consult their Divisional Officer in the first instance. Changes of degree are not permitted after 31 March in Session 1, or 31 August for Session 2.

### **Client Service Charter**

The services of Student Administrative Services and other important information are outlined in the SAS Client Service Charter which is available from the Student Gateway or by contacting Student Administrative Services.

### **Contact**

Student Administrative Services, UNSW@ADFA  
Australian Defence Force Academy  
Canberra ACT 2600  
Telephone: (02) 6268 6000  
Facsimile: (02) 6268 8666  
Email: [sas@adfa.edu.au](mailto:sas@adfa.edu.au)  
Website: [www.unsw.adfa.edu.au/student/contact/](http://www.unsw.adfa.edu.au/student/contact/)

The policies and procedures listed in this Handbook are a subset of the UNSW policies and procedures which are available through the UNSW@ADFA Student Gateway ([www.unsw.adfa.edu.au/student](http://www.unsw.adfa.edu.au/student)) and the UNSW@ADFA Policy Register ([www.unsw.adfa.edu.au/governance/policies/](http://www.unsw.adfa.edu.au/governance/policies/)).

Advice and further information on these policies and procedures is available from Student Administrative Services.

# UNDERGRADUATE INFORMATION

## Essential Preparation for University – before you arrive at ADFA

All new undergraduate students should complete the following steps before arriving at ADFA:

### Step 1 – Understand your degree rules

Read the Degree Rules for the program you are undertaking and the Undergraduate General Award Rules (both can be found in this Handbook).

### Step 2 – Course selection

Think about what courses you would like to study by browsing through the Course Catalogue section of this Handbook.

### Step 3 – Principal dates

Use the “Principal Dates” listed on the inside cover of this Handbook to note crucial dates and deadlines in your diary.

### Step 4 – Credit for previous study (if applicable)

If you have studied at a University before, please read the section of this Handbook titled “Credit for Previous Study (Advanced Standing)” and submit any of the necessary documentation immediately.

### Step 5 – Language studies (if applicable)

If you have studied a language other than Indonesian to Year 12 level and wish to continue your studies at university level, please read the section of this Handbook titled “Cross Institutional Language Studies” and submit your application to Student Administrative Services immediately.

## Optional Preparation

The following steps are optional prior to your arrival at ADFA. If not completed prior to your arrival, steps 6 to 9 will be completed at the compulsory Enrolment Sessions in February 2006.

### Step 6 – Create a UniPass (password)

Use the student ID number and program code contained in your UAC offer letter to create a UniPass (password). You need to create a UniPass to obtain access to *myUNSW*, the University’s Student Portal, your access point for student services and information. The following web site provides you with information about creating a UniPass and logging-in to *myUNSW*: [www.unsw.adfa.edu.au/student/commencing](http://www.unsw.adfa.edu.au/student/commencing)

### Step 7 – Update your personal details

After you have created a UniPass and activated your student account, you need to review and confirm your Personal Details (address, telephone, email and personal statistics). Your contact details as previously supplied to UAC will currently be listed.

### Step 8 – Enrol online

Once you have selected the courses you wish to study (by consulting the ADFA Handbook), you can enrol in your classes online using *myUNSW*. Once you have logged in, select *My Student Profile* and follow the prompts.

### Step 9 – Check your timetable

Select *Class Timetable* in *myUNSW* to view your timetable.

### Step 10 – Set up your student email account

The University uses email as the primary form of communication with students which means that the University does not use letter mail as a matter of course.

You will be provided with your own email account. This account can be accessed from any Internet enabled computer.

You can access your email through a web browser at [www.mail.student.adfa.edu.au](http://www.mail.student.adfa.edu.au), where you are prompted to enter your username and password, your username is ‘z’ followed by your student number and your password is your ADFAPASS.

Further information about how to configure your email account is available at [www.unsw.adfa.edu.au/units/ict](http://www.unsw.adfa.edu.au/units/ict)

### Step 11 – Get your ADFA ID card

You need your ADFA card to -

- borrow books from the Library and access online resources
- get the ICTS Helpdesk to change your password etc
- gain access to areas for students only or after hours access by swiping the card at the door
- identify yourself
- attend examinations

**If you are on campus**, present yourself to the ICTS Helpdesk and have a photo taken. If we can verify that you are a valid student we can give you a card immediately.

If you cannot come to the ICTS Helpdesk, send a passport photo of yourself, together with your student number and contact details, to the ICTS Helpdesk. Please DO NOT send any other type of photo as it cannot be used. The address to post this information to is:

Helpdesk,  
ICT Services, UNSW@ADFA,  
Australian Defence Force Academy,  
Canberra ACT 2600.

Alternatively, you can email a passport photo of yourself, along with your student number and contact details to helpdesk@adfa.edu.au. The JPEG file needs the following minimum specifications 328 wide x 370 high in true colour.

In all instances **the card will be mailed to you unless you advise the ICTS Helpdesk that you wish to collect the card.** When you receive your new ADFA card you will also receive a **Personal Identification Number (PIN)** which you may need to access buildings at the Academy.

This number must be kept secure, in the same way that you would treat the PIN for your credit card.

## MILITARY INFORMATION

### Military Education and Training for Midshipmen and Officer Cadets

'To Lead, to Excel'

#### The Australian Defence Force Academy Charter

The charter of the Australian Defence Force Academy includes the requirement to provide midshipmen and officer cadets with:

- military education and training for the purpose of developing their professional abilities and the qualities of character and leadership that are appropriate to officers of the Defence Force, and
- a balanced and liberal university education within a military environment.

#### The Australian Defence Force Academy Purpose

To serve Australia by providing the Australian Defence Force (ADF) with tertiary graduates who have the foundational attributes, intellect and skills required by an officer.

#### The Australian Defence Force Academy Mission

Best leaders for the ADF.

### Our Learning Environment

We will create and foster a contemporary military education and training environment which engenders in the individual an ethos of service and builds:

Adaptability  
Determination  
Initiative  
Integrity  
Professionalism

through the Academy Values of, being honest, giving everyone a fair go, respecting others and doing our best.

### Standards of Behaviour

All people working and living at the Academy are expected to be honest and treat each other with respect.

As potential future leaders of Australian Servicemen and women, midshipmen and officer cadets are expected to demonstrate very high standards of behaviour in all facets of their work and life at the Academy.

The Academy values provide the framework in which they can demonstrate achievement of those standards.

In addition to demonstrating a strong commitment to their chosen military career, midshipmen and officer cadets must co-exist and cooperate with others regardless of gender, race or other differences. They will also be expected to show that they possess the attributes that will permit them to function effectively as leaders when they graduate from the Defence Force Academy. Physical and moral courage, loyalty, self discipline, honesty, fairness, confidence, a sense of responsibility and duty, and a sense of humour are foremost amongst these attributes.

In short, midshipmen and officer cadets are expected to demonstrate their suitability for leadership everywhere and at all times.

### The Military Environment

A military environment is maintained at the Defence Force Academy. Midshipmen and officer cadets are required to live, work and be led and managed in a military command and administrative structure which reflects the structures in which they will live and work after graduation.

The purpose of the military environment is to provide the cadets with the appropriate atmosphere to develop the behaviours and attitudes required of members of the ADF. The military environment will also help to build their motivation for a long-term career in the ADF.

In this environment midshipmen and officer cadets are subject to the Defence Force Discipline Act 1982. They are expected to abide by all Defence regulations and instructions relevant to the Australian Defence Force and the Academy. This includes attending all scheduled academic studies program classes, obeying the lawful orders and directions of the Academy military staff, abiding by the Academy Standing Orders, treating other people at the Academy fairly and with respect, and conducting themselves in an appropriate manner at all times.

All midshipmen and officer cadets wear the uniform of the Service to which they belong, with minor Academy embellishments and the issue of items specific to the Academy's training needs. Parade drill, the observance of military customs and traditions including the paying of compliments to superiors by saluting and membership of the Academy Cadets Mess are other features of the military environment. In the Mess, cadets have the opportunity to participate in a range of formal social activities, such as dining-in nights, in which military traditions are observed.

At all times, midshipmen and officer cadets are expected to conduct themselves in a manner that will bring credit on themselves, the Academy and the Australian Defence Force. They will also represent the Academy and the Defence Force in a number of public ceremonies, notably those conducted at the Australian War Memorial commemoration services held on ANZAC Day and Remembrance Day. A small number of parades are also held during the year at the Academy, with the Chief of the Defence Force Parade in February/March and the Graduation Parade in December being the most significant.

## Office of the Commandant

The Commandant has overall military responsibility for the Australian Defence Force Academy. The position of the Commandant is a rotational one and is occupied by a Navy Commodore, Army Brigadier or Air Force Air Commodore. All military staff, midshipmen and officer cadets are under his/her command.

The Commandant reports directly to the Commander, Australian Defence College and is directly responsible for the control and management of the Academy.

The Commandant exercises command through the Deputy Commandant. Resource management, contracting and corporate support issues are the responsibility of the Commandant and are managed through the Business Manager.

## Office of the Deputy Commandant

The Deputy Commandant is responsible for the command, military education, and training of the midshipmen and officer cadets. The Executive Officer – Cadets and the Chief Instructor report directly to the Deputy Commandant. The Deputy Commandant is responsible for administering command of the Academy during the Commandant's absence.

The Executive Officer is responsible for the day-to-day management and development of the midshipmen and officer cadets and other military personnel undertaking full-time tertiary study at the Academy.

There is no formal rank structure within the cadet body. However, five administrative positions have been established for selected Year 3 cadets.

The positions are as follows:

- President of the Mess Committee, responsible to DCOMDT;
- Deputy President of the Mess Committee, responsible to DCOMDT;
- Administrative Co-ordinator, responsible to SO3 Cadets;
- Sports Co-ordinator, responsible to CI;
- Band Co-ordinator, responsible to the Band Master.

The selected cadets are responsible for the co-ordination of various activities and liaise with the Executive Officer – Cadets staff, on matters concerning the welfare and administration of the cadet body.

The Chief Instructor is responsible for the development, design, co-ordination and conduct of the Academy Military Education and Training Program as well as the co-ordination of Single-Service Training for midshipmen and officer cadets. All military staff at ADFA assist in the delivery of military training.

## Corporate Services and Infrastructure Group

The Corporate Services and Infrastructure Group is the single point of contact for all Corporate services and Infrastructure Group (CSIG) product lines delivered at the Academy. This includes Service Delivery Division (SDD), Infrastructure Division (ID) (formerly Defence Estate Organisation – (DEO)) and Information Systems Division (ISD). Its primary purpose is to provide clients with a single point for planning, briefings and problem resolution.

Most of the services and product lines delivered at the Academy are provided by civilian contractors. At the Academy, Eurest Australia is the primary Garrison Support Services (GSS) contractor. Services and product lines delivered by Eurest include Catering, Transport, Clothing Store, Security, Waste Management, Pest, Cleaning and Grounds Maintenance.

Other services and product lines are provided by CSIG and TCS APS personnel and include Pay and Administration (Orderly Room), Registry and Mail Room services.

## Officer Development

### Military Training

The three-year military training program equips midshipmen and officer cadets with the fundamental knowledge, skills and attitudes that junior officers in the Australian Defence Force require. This provides the basis for the individual Services to conduct further training and development when cadets leave the Academy. The military training program consists of two key components – Academy Military Education and Training Program and Single-Service Training.

## Academy Life

### The First Weeks

The first weeks at the Academy are a busy time for midshipmen and officer cadets as they are issued with clothing, have medical examinations, undertake military orientation and commence five weeks of military training. This period is known as the Year One Familiarisation and is intended to give cadets the basic military and interpersonal skills essential for their Service careers, and for living and working at the Defence Force Academy. It must be noted that resignation in the first five weeks of the course is not permitted except in exceptional circumstances and that leave restrictions do apply for this time period.

Military discipline, care of uniforms, self-discipline and strict routines are new experiences for most cadets. The development of high standards of dress, bearing, behaviour and attitude is the aim of the Year One Familiarisation Period (YOFT). In order to achieve and maintain these standards, cadets must quickly acquire skills in organising and managing their time, washing and ironing, polishing boots and shoes, making beds and cleaning rooms and facilities. Midshipmen and officer cadets can prepare for the first five weeks by being proficient in those tasks and by having a high level of physical fitness before arriving at the Academy.

### Academy Military Education and Training Program

The Academy Military Education and Training Program is carried out in 'blocks' at the beginning and end of the year and for eight hours per week during the academic sessions. There is significant emphasis on creating experience-based leadership opportunities in the training activities.

The Academy Military Education and Training Program includes a range of subjects:

Military Familiarisation assists midshipmen and officer cadets in making a smooth transition from civilian to military life. It provides introductory training in military protocol, ADFA discipline and regulations, uniform assembly and maintenance, and midshipmen and officer-cadet lifestyle.

Customs and Traditions forms part of a body of knowledge commonly referred to as General Service Knowledge. This incorporates information relating to Flag, Colours and Standards, Honours, Salutes and Awards.

Leadership and Management training provides midshipmen and officer cadets with opportunities to apply theory-based concepts whilst at ADFA and during Leadership Challenge Exercises. The key to the training is developing the qualities and attributes of a leader.

A graduate of ADFA is required to display the qualities of Adaptability, Initiative, Integrity, Determination and Professionalism.

Drill and Ceremonial training promotes reaction to command, self-discipline and teamwork through knowledge and practice of the customs and traditions of military ceremonies.

The Military Communication program aims to develop the skills necessary to be effective in oral and written communication. Training is also provided to introduce cadets to the style and forms of written communication used in the Defence organisation.

Equity Training provides midshipmen and officer cadets with the skills to live, study and develop in a healthy academic and social environment by teaching them how to treat people fairly and with respect in accordance with Australian Defence Force policies.

First Aid Training is provided to all midshipmen and officers cadets to ensure that a certified standard of first aid skill is obtained and maintained.

Field Craft introduces midshipmen and officer cadets to living in the field. Training includes application of field hygiene principles and personal rations.

Military Law introduces midshipmen and officer cadets to the military law system and provides instruction on the Defence Force Discipline Act.

Physical and Recreational Training teaches fitness concepts and develops individual fitness components as well as injury prevention awareness. Sport and a high standard of physical fitness are important parts of Service life. Competitions in a wide range of sports are conducted at the Academy and teams are entered in many civilian competitions in Canberra.

Weapon Training is provided to qualify midshipmen and officer cadets on the F88 Austeyr. Weapon proficiency is maintained by programmed instruction and testing.

Defence Studies, in conjunction with Strategic Studies, provides midshipmen and officer cadets with an understanding of the structure and operation of their Service and the ADF in general. Military knowledge is built by examining defence issues in local, regional and global contexts.

### Single-Service Training

Single-Service Training is conducted at the beginning, middle and end of the year for varying periods of time, and gives midshipmen and officer cadets the opportunity to experience and learn about their parent Service.

The individual Services are responsible for designing and implementing the syllabi for the conduct of single-Service training which are outlined below:

#### Naval Single-Service Training

Direct entry midshipmen undergo specific Naval training during their first year at ADFA, normally during July and November. In second year, midshipmen are introduced to life in the Royal Australian Navy through periods at sea and visits to shore establishments. In their second and third years midshipmen will go to sea in a variety of ships where they work alongside sailors to gain an appreciation of shipboard life and work. Midshipmen in engineering also undertake periods of work experience during their naval training.

Navy also makes provision for Midshipmen to complete a degree at ADFA after serving 12 months in their Single Service completing initial Officer Training at HMAS Creswell and commencing their first two phases of their Primary Qualification Application course in the fleet.

## Army Single-Service Training

The Single-Service Training for Army officer cadets is conducted by the Royal Military College at Duntroon and takes them to the level of a trained soldier. The training includes weapon handling, fieldcraft, navigation and tactics at section level.

## Air Force Single-Service Training

Air Force Single-Service Training is designed to allow officer cadets to complete the RAAF Junior Officers Initial Course equivalent during their time at the Academy.

The training includes general Service knowledge, ground defence training and air power knowledge. It also includes elements to motivate each officer cadet towards their chosen branch in the Air Force.

## Progress of Academy Programs

Midshipmen and officer cadets undertaking Arts, Business, Science or Technology programs are awarded their degrees after satisfactory completion of three years' academic and military studies. Cadets undertaking an Engineering degree follow a prescribed four-year program. Students of merit may be offered transfer to an honours program, providing their Service authorises a further twelve months of training.

After successfully completing three years at the Academy, all Army officer cadets undertake a year of military training at the Royal Military College at Duntroon, after which they are commissioned as Lieutenants. Most then take up their first appointment in an Army unit while others return to the Defence Force Academy for an honours year or the fourth year of an Engineering degree.

Midshipmen and Air Force officer cadets who undertake a fourth year of study do so as Advanced Students, without a break in their academic studies. Their rank for the fourth year is midshipman or officer cadet.

## Prizes and Awards

At the end of the third year at the Academy, all midshipmen and officer cadets who have met the military and academic requirements are awarded ADFA graduate status and a University of New South Wales degree.

The third-year midshipman or officer cadet who achieves the highest overall result in military subjects and academic studies and who exerts the most positive and effective influence on his/her peer group, will receive the Commander-in-Chief Medal for excellence in training. The most outstanding third-year midshipman, Army officer cadet and Air Force officer cadet each will be presented with a Chief of Defence Force Prize from their parent Service.

Outstanding individual performances in the various academic streams and individual subjects in all years are rewarded with other prizes which are paid for by public funds, University of New South Wales funds and donations. Prizes and awards are also presented for individual excellence in military subjects and are funded by private donations from individuals and organisations.

## Return of Service Obligation

On reaching Graduation Day at the end of Year Two studies at the Academy, seen as the 'employable point' of their careers, midshipmen and officer cadets attract a requirement to fulfil a 'Return of Service Obligation' equivalent to one year of service for every year spent under training, plus one additional year. At this 'employable point' midshipmen and officer cadets may not resign from the Service until they have discharged their Return of Service Obligation.

There is a financial penalty for midshipmen and officer cadets who seek discharge at their own request after this "employable point". They may in exceptional circumstances be permitted to resign, but will be required to reimburse the Commonwealth for the cost of their training and education. The amount to be reimbursed will be determined by the Minister for Defence.

## Fitness and Health

Sport and physical training play an important part in Service life. The primary aim of physical training at the Academy is to educate midshipmen and officer cadets in the values of maintaining a healthy lifestyle. During their stay at the Academy midshipmen and officer cadets are required to pass the relevant Single-Service Fitness Test. The minimum standards for midshipmen and officer cadets are as follows:

### Navy

	Male age less than 35	Female less than 35
Hang	25	25
or		
Push-ups	25	10
Sit-up	25	25
2.4 km Run	13 mins	15 mins
or		
5 km Walk	42 mins	43 mins
or		
500 m Swim	12 mins, 30 secs	13 mins, 30 secs

### Army < 21

	Male			Female		
Level	1	2	3	1	2	3
Push-up	50	60	70	25	35	45
Sit-up	75	90	100	75	90	100
2.4 km Run	10 mins, 48 secs	8 mins, 30 secs	7 mins, 45 secs	12mins, 27 secs	10mins, 40 secs	9 mins, 40 secs

### Army 21 - 25

Push-up	40	55	60	21	35	41
Sit-up	70	85	98	70	85	98
2.4 km Run	11 mins, 18 secs	10 mins	8 mins, 40 secs	13 mins, 30 secs	11 mins, 25 secs	10 mins

### RAAF

	Male less than 35	Female less than 35
Hang	30	30
Sit-up	30	30
2.4 km Run	12 mins	13 mins
or		
5 km Walk	40 mins	41 mins



## Weekday Routine

The daily routine during the week consists of wake up at 0600 and roll call at 0605. Academic and military lessons begin at 0800. Before 0800 cadets are required to attend breakfast and to take part in scheduled Divisional activities such as parades, cleaning duties, flag raising duties and Divisional Officer hours. Academic and military lessons are divided into nine 50-minute periods from 0800 to 1900. (Please note, the timetable process may change.)

## Weekend Leave

At weekends cadets pursue their own activities unless they are involved in sporting commitments or the occasional military activity. Cadets are free to go on local leave within a 100-kilometre radius of the Academy. Approval must be obtained to travel outside this radius.

## Military Protocol

Military staff at the Defence Force Academy are drawn from the three Services of the Australian Defence Force. Although midshipmen and officer cadets join a single Service, the tri-Service nature of the Academy means that they must quickly learn the rank insignia of the three Services. Cadets learn the insignia early in the military training program.

## Saluting

The military salute has its origins in the middle ages when knights, upon meeting, raised their visors as a sign of friendship and trust. The hand salute was also a means of showing an open palm with no concealed weapons – again, a sign of trust. Today, the hand salute is an expression of mutual respect such that when a senior is saluted he or she is obliged to return the salute. The salute is a visible act of courtesy, not an act of servility. Midshipmen and officer cadets are required to salute all Service officers, whether in uniform or in civilian clothing.

## Dress and Grooming

During their first week at the Academy, new midshipmen and officer cadets will be issued with the uniforms of their Service, plus common items such as sports clothing.

During a working day cadets wear their single-Service uniforms. During free time they are permitted to wear civilian dress. The civilian dress standard is slightly higher than the community norm for students of that age group.

There is a variety of forms of Service uniforms and cadets may be expected to wear more than one type of uniform during the day. As such, they need to be well organised and accustomed to planning ahead.

## Support Services

### Chaplains

There are three Chaplains at the Academy, one from each Service, representing various denominations. The Catholic chaplain at Royal Military College is available for specifically Catholic issues.

The chaplains conduct workshops in Character Development (as part of the Military Training Program) and Character Guidance for all midshipmen and cadets. They also conduct a two-day exercise for midshipmen and officer cadets at the end of their second year at the Academy.

Spiritual and personal development is encouraged through worship services at the Australian Defence Force Academy, and on Sunday by worship at the ANZAC Memorial Chapel of St Paul in nearby Duntroon. Voluntary bible study, prayer and fellowship groups meet at the Academy on a daily basis.

The Chaplains seek to engage with cadets and staff in a proactive manner both at the Academy and in a variety of single-Service and field training and leisure environments. They provide a confidential pastoral and counselling ministry both during the working day and out of hours through an 'on-call' Chaplain.

### Medical and Dental

The Canberra Area Medical Unit located at Duntroon (CAMU-D) provides full medical services for all staff members. The cadets attend their own Regimental Aid Post (RAP) located at ADFA.

The ADFA medical centre provides a medical service to elements of ADFA, specifically ADFA cadets (first, second, third and fourth year). Bookings can be made on (02) 6268 8966.

Sick Parade times for cadets are as follows:

	MON	TUE	WED	THU	FRI
0730Hrs	year1	year3	year1	year1	year2
0830Hrs	year2	year2	year2	year2	year1
0930Hrs	yr3/4	yr1/4	yr3/4	yr3/4	yr3/4

Cadets ARE TO arrive at the commencement of the designated time for their respective year and NO LATER.

Sick Parade for Staff is 7.30am till 9.30am at CAMU-D. Bookings can be arranged on (02) 6268 8610. **Sick parade is to be utilised for URGENT cases ONLY**, that is illnesses or injuries less than 48 hours since onset or occurrence. **EMERGENCIES** will be attended to at any time.

On Saturday and Sunday there is a sick parade held for URGENT cases requiring immediate medical attention between 0900hrs – 1200hrs at the Outpatients Department at CAMU-D. No appointment is necessary.

In the case of SERIOUS injuries and illness out of hours please telephone (02) 6265 9407 or (02) 6265 9613. In the case of a life threatening illness or injury please call EMERGENCY on (02) 6275 9322. Assistance is available 24 hours a day.

The Physiotherapy Department is located within the Hospital at Duntroon. Sick Parades are conducted Monday to Friday from 0730 to 0930hrs for injuries 48hrs old or less. Bookings are essential outside these times on (02) 6265 9616.

The Pharmacy is located at CAMU-D and operates between the hours of 0730 to 1600hrs Monday to Friday. X-Ray services are provided at CAMU-D between the hours of 0830 and 1130 Monday to Friday and bookings are essential on (02) 6265 9757. More complex scans and procedures are outsourced, this requires a referral number which can be obtained from the accounts section at CAMU-D.

The Canberra Dental Unit is located at the Duntroon Hospital. Contact number is (02) 6265 9487. Their hours are Mon-Fri 8.00am till 3.30pm. Sick Parade is from 8.00 till 8.30am Mon-Fri.

## Psychology and Counselling Service

This service operates through three qualified psychologists and one support staff. The psychologists offer a confidential counselling service for midshipmen, officer cadets and staff who wish to refer themselves for counselling or support. Referrals are made for a wide variety of reasons, ranging from issues relating specifically to studies, career and vocational guidance, through to more personal concerns or difficulties.

In addition to individual counselling, the psychologists conduct workshops on study techniques and methods for reducing stress and anxiety. Courses are also taught on leadership dynamics, human behaviour, interviewing and counselling skills, alcohol and drug awareness, suicide awareness and prevention, mental health awareness and well being, operational and combat stress.

The psychologists also have an important role in assisting first-year midshipmen and officer cadets make the transition from civilian to military life and from secondary to tertiary education. This includes advice on approaching academic work and study techniques, subject choices in relation to students' abilities and vocational goals.

## Equity and Diversity

The Defence Force Academy is committed to promoting and fostering a culture of equity and diversity, and emphasises the importance of valuing fairness and difference as good leadership practice. Equity means a fair go for everyone and seeks to treat people on their merit. Diversity focuses on making the most of differences in people to ensure a more harmonious, productive and efficient work environment.

Commanders and managers at the Academy are required to provide a work environment free from discrimination, harassment, sexual offences and other unacceptable behaviour. To achieve this, the Academy operates under the Australian Defence Force policy of zero tolerance for unacceptable behaviour and the guidelines for dealing with and eliminating discrimination, harassment, sexual offences and unacceptable behaviour.

The Academy Equity Adviser network supports commanders and managers in implementing equity and diversity at the Academy and provides all personnel with support, information and options for the resolution of workplace equity and diversity issues.

## Living Arrangements

### Accommodation

Midshipmen and officer cadets are accommodated in comfortable, functional living quarters. Each person has a private room with facilities for studying. Four such rooms are grouped into a corridor with shared bathroom and laundry facilities. In addition to individual accommodation, each Division has a common recreation area with pay telephone, refrigerator, microwave oven, television, stereo and a computer terminal room. Cadet accommodation is inspected regularly by Divisional staff in order to ensure that cleanliness and neatness is maintained.

Midshipmen and officer cadets in their first year at the Academy are accommodated in mixed-Service, mixed-gender Divisions comprising approximately 47 cadets. During their second and third years, midshipmen and officer cadets live in a mixed gender, single-Service environment. The single-Service nature of second and third-year Squadrons assists cadets in developing greater familiarity with their parent Service.

One room in each accommodation block is allocated as an office to the Divisional Senior Non-Commissioned Officer.

### Visitors

Visitors to the Academy are welcome provided they do not disrupt the study program of the host cadet or any other person. Only in exceptional circumstances will cadets be permitted to receive visitors during programmed working hours or sports periods. For reasons of welfare and security, visitors are not permitted to enter the accommodation blocks without appropriate authorisation from the Divisional Officer.

### Pay

Midshipmen and officer cadets are paid each Thursday fortnight directly into a nominated bank or credit union account. The Defence Credit Union (DEFCREDIT) and the Australian Defence Credit Union, each have a branch located at the Academy. There is also a DEFCREDIT Multi-Card ATM facility which operates 24 hours a day.

All members of the Australian Defence Force pay tax, contributions to the Military Superannuation Benefits Scheme and charges for the rations and quarters provided. Ration and quarters charges are not made during periods of leave in excess of 72 hours or when cadets are in the field or at sea.

At June 2005 midshipmen and officer cadet pay scales were as follows:

- a. 1st Year           \$18, 919 Per Annum,
- b. 2nd Year         \$22, 558 Per Annum, and
- c. 3rd Year          \$28, 380 Per Annum.

A first-year cadet could expect deductions for accommodation and utilities (compulsory), and for meals (optional). The tax and superannuation deductions increase each year with the cadets' salary.

The Department of Defence pays the Commonwealth Supported Places (formerly HECS) levy for cadets' university studies at the Defence Force Academy.

## Leave

Midshipmen and officer cadets generally receive two periods of recreation leave each year. This may be subject to changes in accordance with training requirements. The two leave periods include: four to five weeks during the Christmas/New Year break and two weeks during the Semester break in July. As Year One cadets are required to undertake Single Service Training during the July Break they are not able to proceed on leave.

Midshipmen and officer cadets receive two free trips to their nominated family address within Australia each year. Cadets are required to vacate their accommodation during the Christmas/New Year break to enable professional cleaning and refurbishment of the building.

During the first five weeks of the Year One Familiarisation Period, new cadets may be granted one day of leave. After the first five weeks, leave is generally restricted to weekends until July. After July first-year cadets may take local leave all night during the week unless they are under 18 when they must return by midnight. Additional leave may be requested through the chain of command where special circumstances exist.

The first opportunity for extended leave occurs at Easter and is usually of four days' duration. For this period cadets may apply for leave and travel at their own expense beyond the local area.

In addition to recreation leave, the two-week May Training Period provides an opportunity to undertake adventurous training, field study trips, Single-Service Training, military training, remedial academic courses or Engineering workshops. Midshipmen and officer cadets may go on leave during the May Training Period if they are not required for duty. Duty is defined as any activity at which a cadet's attendance has been programmed or ordered by the Commanding Officer. It includes sport, sports training and all academic and military activities.

## The Academy Cadets Mess

Adjacent to the cadet's accommodation is the Academy Cadets Mess, which is the largest Officers Mess in Australia and is designed to seat 1,000 people and cater for up to 1,200 cadets. The Mess comprises food preparation areas, kitchen, storage and freezer rooms, dining areas, bars, recreation rooms and a shop.

## Facilities and Services

### Indoor Sports Centre

The Indoor Sports Centre contains a 25-metre heated swimming pool, three squash courts, a multi-purpose indoor court, a weight training room, a cardio-vascular theatre and a boxer-cise room. There are also showers and change rooms. The Indoor Sports Centre is located adjacent to the Cadets Mess and is only a short walk from the accommodation blocks.

### Sports Grounds

Within the grounds of the Academy are playing fields for cricket, football, hockey and other sports. Tennis courts are located to the east of Building 21 and cadets may use the golf course at the Royal Military College, Duntroon.

### Boatshed and Boating

The Academy Boatshed is located on the shore of Lake Burley Griffin at Yarralumla. The facility houses rowing boats, sailing and racing dinghies, canoes, kayaks and a number of sailboards. The Boatshed has a ramp to the waters of Yarralumla Bay and is perfectly sited for all water sports. The Academy also operates three Endeavour 24 Yachts, that are moored permanently on the Lake, and seven support craft for a variety of waterborne activities.

### Academy House

A building known as Academy House is located in the area bounded by the Academy Library, Information Communication Technology Services and the School of Information Technology and Electrical Engineering. Located in this building are the following establishments, which provide services to all Academy staff, midshipmen and officer cadets:

**ADFA Electrical Store:** The ADFA Electrical Store is open 0900–1700 hrs, Tuesdays and Thursdays to enable the purchase of electrical items for cadets.

**Banking:** A branch of DEFCREDIT which offers a wide range of banking needs and a 24-hour ATM facility; and a branch of the Australian Defence Credit Union (ADCU).

**Bookshop:** The University Cooperative Bookshop is open Monday to Friday from 0900–1700hrs and stocks all academic textbooks, general books and stationery. A wide range of computer software is also available. Membership of the Co-op permits attractive discounts on most purchases, excluding magazines, cards and postage stamps.

**Coffee shop:** The ADFA Cafe offers hot meals to eat in or take away, snacks, hot and cold drinks and confectionery. The ADFA Cafe is an area where cadets can relax either inside or outside the building.

**Hairdressers:** A hairdressing salon operates between 0830–1700hrs on weekdays and on Thursday nights by appointment.

## Motor Vehicles

Midshipmen and officer cadets may own and operate motor vehicles, including motor cycles. All vehicles must be registered with the Academy on arrival. Vehicles must be registered with the relevant State or Territory Motor Registry in accordance with Australian National Traffic Regulations. If your vehicle registration or driver's licence expires during your time at the Academy, you are recommended to transfer your registration or licence to the ACT.

Each cadet who has a vehicle registered at the Academy is allowed to park in the car parks available. Motor vehicles must be roadworthy, mechanically sound, registered and insured to at least third-party-property level or they cannot be driven, ridden or parked in the Academy grounds. In exceptional circumstances and depending upon the availability of spaces, cadets may be allowed to use a second car parking space for parking a second vehicle, e.g. a trailer.

The operation and parking of motor vehicles at the Academy are privileges, not rights. Such privileges may be revoked if a driver or owner breaches any of the traffic rules applicable to the Academy or contravenes any accepted practice of safe operation of a motor vehicle.

## Community & Other Activities

### General Sport

Participation in sporting activities at the Academy is intended to promote competitiveness, teamwork, leadership, strength, agility and endurance. Sport also provides midshipmen and officer cadets with opportunities to meet and socialise with members of other teams within the local community. However, Academy sports are not limited to team events: individual excellence in such sports as athletics, swimming, triathlon, martial arts, sailing and shooting is also encouraged.

Participation in sport is not compulsory, although involvement in at least one major sport each season is strongly encouraged. Major sports are those team sports in which the Academy is represented in local competitions and they also form the basis of internal competitions between squadrons. Subsidies of uniforms or equipment and assistance with compulsory costs and travel may be available for many sports.

The Lancaster Shield is presented to the squadron who has achieved the best results over a variety of competitions conducted throughout the year.

The following sports are annually conducted for the shield: athletics, swimming, cross country running, tug-o-war, endurance challenge, the fitness excellence competition, lawn lap and obstacle course.

## Sports Clubs

Sporting clubs at the Academy are formed under the control of the Chief Instructor and guidance from the Officer Commanding Physical and Recreation Training. Members of staff are appointed as supervisors of each club. Sporting clubs include:

In-line Hockey	Rugby Union
Netball	Hockey
Indoor Cricket	Triathlon
Touch Football	Soccer
Basketball	Rowing
Cricket	Water Polo
Sailing	Volleyball

Australian Rules Football

The Academy sends teams each week to participate in the various community sports competitions. Most participation occurs in Winter due to the long absence of cadets from the Academy during the Summer months. Cricket is played on a social basis during the Summer season.

## Voluntary Extra-Curricular Activities

A number of Voluntary Extra-Curricular Activities that provide cadets with interests outside normal activities and sports are established, depending on the amount of interest shown in them. They include:

Band	Baseball
Drill Team	Debating
Fencing	Military Shooting
Mountaineering	Performing Arts
Precision Drill Team	Sailing
Triathlon	Yearbook

## The Band, Pipes and Drums of the Academy

The Band, Pipes and Drums of the Australian Defence Force Academy is a military concert band under the administration and conduct of a member of the Australian Army Band Corps. The Band rehearses regularly and has occasional practice on weekends. Membership of the Band is voluntary with a commitment of 12 months. Midshipmen and officer cadets who wish to join are encouraged to supply their own instruments, although some are provided by the Academy.

There are bagpipe, percussion and woodwind sections of the Band. The Bagpipe is the only instrument that is taught from beginner level, with tuition provided by a civilian teacher.

The Band performs for all Academy parades and provides musical support for the Academy Production, concert evenings, presentation nights and Church services. The Band also performs outside the Academy occasionally, with a commitment during the academic year to providing a piper or bugler for the weekly closing of the Australian War Memorial.

## The Foster Family Scheme

During the first few weeks, midshipmen and officer cadets from outside the Australian Capital Territory are invited to join the Foster Family Scheme. This scheme introduces cadets to serving and retired military officers and warrant officers living locally who will provide a home-away-from-home environment to assist in the settling-in process.

These families, who are all volunteers, also provide mentoring and an opportunity for one-on-one discussion about career options and other concerns. Cadets are encouraged to join the scheme.

## Charities

The Academy is involved in supporting a number of charities each year. These include Legacy, Red Cross, ANZAC Day badge selling and the Salvation Army Door Knock appeal. Individual cadets may be asked to provide support during these appeals.

## Community Participation

Cadets are encouraged to pursue personal interests outside the Academy and take an active role in the local community. Some are involved in local organisations such as scouting groups, local sporting teams, the Canberra Symphony Orchestra, bible study groups and the local animal shelter, to name a few.

# ACADEMIC INFORMATION

UNSW@ADFA offers the following undergraduate degree programs:

Bachelor of Arts

Bachelor of Business

Bachelor of Science

Bachelor of Engineering

Aeronautical Engineering  
Civil Engineering  
Electrical Engineering  
Mechanical Engineering

Bachelor of Technology

Aeronautical Engineering  
Aviation

The BA, BBus and BSc programs at UNSW@ADFA are three-year programs at pass level and four-year programs at honours level.

The BE program is of four-years' duration and the degree may be awarded as a pass or an honours degree. The engineering programs have been granted full recognition by the Institution of Engineers Australia and in addition the Electrical Engineering program has been recognised by the Institute of Electrical and Electronics Engineers.

The BTech (Aeronautical Engineering) program is a three-year degree at pass level. There is provision for students who have completed the BTech to upgrade it to a BE degree in Aeronautical Engineering by undertaking at least 18 months further study at a later stage.

The BTech (Aviation) program is a three-year degree at pass level. The first two years are undertaken at ADFA. The final year includes a project and the flying component of the degree is presented at Tamworth (first Session), and Pearce (second Session).

## Guidelines for Combined Degree Programs

After commencing at UNSW@ADFA students may apply to undertake one of the following combined degree programs:

Bachelor of Arts/Bachelor of Science (BA/BSc)

Bachelor of Engineering/Bachelor of Arts (BE/BA)

Bachelor of Engineering/Bachelor of Science (BE/BSc)

Owing to current military policy, students will normally only be considered for a combined degree if they have sufficient credit for previous study (advanced standing) to enable them to complete the requirements for the combined degree in three years (BA/BSc) or four years (BE/BA and BE/BSc).

Due to the cross-disciplinary nature of a combined degree programs, enrolled students are exempt from the University's General Education requirements.

For students enrolled in combined programs including Engineering, the full requirements of the BE must be completed to meet Engineers Australia requirements.

The proposed structures set out the minimum requirements for each component of the combined degree programs. Individual program plans must be developed and approved, in consultation with the Course Authority for each School, prior to enrolment in the combined degree program.

Proposed structures for combined degrees including the Bachelor of Business have not been included at this time. Students wishing to undertake a combined degree including the BBus are advised to consult the Course Authority for the School of Business.

### Proposed BA/BSc combined degree program structure (4 years)

COMPONENT	UNITS OF CREDIT
BA Major	48
BA Minor	24
BSc Major	48
BSc Minor	24
Elective courses	36
Directed Studies courses	12
<b>TOTAL FOR COMBINED PROGRAM</b>	<b>192</b>

### Proposed BE/BA or BE/BSc combined degree program structure (5 years)

COMPONENT	UNITS OF CREDIT
Engineering courses	174
BA/BSc Major	48
Arts/Science elective courses	12
<b>TOTAL FOR COMBINED PROGRAM</b>	<b>240</b>

BA students must include Arts electives and BSc students must include Science electives.

### Honours

Pass-level students in arts, business and science generally complete their degree programs at the end of the third year. Honours students and engineering students who are RAN and RAAF officer cadets continue with their programs at UNSW@ADFA and complete their degrees at the end of the fourth year.

Army officer cadets transfer to the Royal Military College, Duntroon at the end of the third year. After completing a year of military training they are commissioned as lieutenants. Those who are continuing with honours programs in arts, business and science and all engineering students return to the Academy to complete their degrees in the final academic year at UNSW@ADFA.

## Academic Standing

Academic Standing, consisting of good standing and several other levels, will be assigned to students at the end of each main session. Movement between levels is based on progress, measured by proportion of load passed (undergraduate), or cumulative number of failures (postgraduate). Research and non-award students do not participate in the Academic Standing scheme. The Program Authority assigns an adviser to each student not in good standing. Continued poor progress can lead to suspension (one year) or exclusion (two years, no auto-readmission).

### Academic Standing Rules for Undergraduate Students

Academic standing levels for undergraduate students are

**Good:** the student's current progress is deemed satisfactory. Undefined standing (as when a student is first admitted) is also assumed to be good standing.

**Referral:** it is recommended that the student consult their assigned adviser.

**Probation 1, Probation 2:** the student must consult their assigned adviser, who approves the next session's enrolment.

**Suspension:** the student is not permitted to enrol for one year.

**Probation 3:** an additional probation level that applies after return from suspension.

**Exclusion:** the student is not permitted to enrol for two years, and must reapply for admission after that period.

### Unsatisfactory Progress

Students are assigned a level of standing based on their previous standing and their progress in the current (main) session. Progress is either satisfactory, unsatisfactory, nil, or undefined.

**Satisfactory:** the student has attempted more than 6 units of credit and passed at least 50% of the attempted load.

**Nil:** the student has attempted more than 6 units of credit and failed all courses.

**Unsatisfactory:** the student has attempted more than 6 units of credit and failed more than 50% of the attempted load (but not all attempted courses); or has attempted up to 6 units of credit and has failed all courses.

**Table 1 Progress Rules for Undergraduate Students**

No of Units	Number of Units Attempted	Progress Passed
0		Indeterminate
6 units or fewer	All	Good
6 units or fewer	Some	Indeterminate
6 units or fewer	None	Poor
More than 6	At least half	Good
More than 6	Some, but less than half	Poor
More than 6	None	Nil

If insufficient load is attempted, the student retains the previous session's standing.

Standing for students with unresolved results cannot always be determined.

Depending on the session's performance a student may move down or up the levels of academic standing.

## Transitions

During the first phase (prior standing is Good, Referral, Probation 1 or Probation 2), if progress in the current session is satisfactory, standing is set to Good. If progress is unsatisfactory, standing is set one step beyond the previous level, and if it is nil, two steps are applied. Suspension is the last point in this phase.

After return from suspension, (Phase 2) satisfactory progress returns the student to Probation 1, unsatisfactory progress moves the student to the final probation level (Probation 3), and nil progress leads to exclusion.

Levels are shown in the following table:

**Table 2 Levels of Academic Standing for Undergraduate Students**

Phase	Academic Standing	Implications for student
1	Good Standing	None
	Referral	Recommended to consult assigned adviser
	Probation 1	Enrolment must be approved by adviser
	Probation 2	As for Probation 1; last chance to avoid suspension
	Suspension	Not permitted to enrol for 2 sessions
2	Probation 3	As for Probation 1 or 2; last chance to avoid exclusion
	Exclusion	Excluded from the University for two years

## Managing Student Progress - Re-Enrolment

### Appeal Procedures

In June 2000, the University's Academic Board adopted the following rules governing appeals against suspension or exclusion:

1. Students who are suspended or excluded from a program have the right of appeal. An Undergraduate Re-enrolment Appeal Committee and a Postgraduate Re-enrolment Appeal Committee of the Academic Board will be constituted for the purpose of hearing such appeals.
2. Each Committee will have a membership of five members of academic staff (with a quorum of three) and will be chaired by a member of the Academic Board nominated by the President. The remaining members of the Committee need not be members of the Academic Board but will be nominated by the President taking into account their relevant experience and expertise. Members will not currently be involved in managing student progress and will disqualify themselves if they have previously been involved in the case of a particular student.
3. The decision of the Committee shall be final.
4. The notification to students that they have been suspended or excluded shall indicate that they may appeal that decision to the relevant Re-enrolment Appeal Committee. The appeal must be lodged with the Manager, Student Administrative Services within fourteen days of the date of notification; in special circumstances a late appeal may be accepted at the discretion of the chairperson of the Appeal Committee.
5. In lodging such an appeal, students should provide a complete statement of all grounds on which the appeal is based.
6. The Appeal Committee shall determine appeals after consideration of each appellant's academic record and stated grounds of appeal. Students may elect to appear before the Committee and/or be represented.

## Admission to ADFA

### Admission to the Academy

#### General Entry Qualifications

To be eligible for entry to the Australian Defence Force Academy as an officer cadet or midshipman, an applicant:

- must be, or must undertake to become, an Australian citizen
- must meet certain medical and psychological standards
- must meet the educational qualifications for admission to UNSW@ADFA and must be selected by the Defence Academy Selection Board of one of the three Services. Details of the requirements and further information may be obtained from any Defence Force Careers Reference Centre. The educational qualifications are set out in the section below.

#### Applications

Applicants seeking entry in the next calendar year may have already completed secondary education, and some may have begun tertiary programs. However, most will be Year 12 students who will not have met the educational qualifications for the Academy at the time of applying, but who expect to do so in the current year.

All applicants who are required to appear before a Defence Force Selection Board must lodge an application form with the Universities Admissions Centre (UAC) (Locked Bag 112, Silverwater, NSW, 2128) by the end of September (late applications are accepted until mid December on payment of a late fee). Applicants may use the same form to apply for civilian NSW and ACT universities.

#### Academy Education Award

Prospective students who are in Year 11 may apply for the Academy Education Award, presented annually to Year 12 students in recognition of leadership potential, academic and sporting achievements exhibited during Year 11. The award, which comprises a laptop computer and certificate for the recipient and a plaque for their school, is presented on behalf of the Navy, Army or Air Force to 120 suitable applicants who have applied for entry to the Australian Defence Force Academy (ADFA). The application form is available from their local Australian Defence Recruitment Centres on 13 19 01.

#### Award Eligibility

To be eligible to apply for the award, students must be studying Year 11 subjects that meet both the educational qualifications for admission to UNSW@ADFA and Single-Service requirements. They must submit an application prior to 31 July in the year they complete Year 11. Applicants will be processed for entry to ADFA and will participate in Officer Selection Boards (OSB). Applicants may apply for awards to all three Services but if successful they will only be presented to the OSB for the Service of their choice. Successful candidates will only receive the award if they are recommended by the OSB, are enrolled in Year 12 at the time of the award presentation and meet age-limit requirements for ADFA entry.

#### Assessment

The process comprises of the ADFA-entry psychometric assessment, medical testing and a series of interviews, including a Single-Service Selection Board. Receipt of the ADFA Education Award does not guarantee entry to ADFA. Recipients will still be in national competition against other candidates for entry.

#### Obligation of the Recipient

The ADFA Education Award is unbonded, that is there is no obligation to continue with the ADFA application nor is there any obligation on the Australian Defence Force to offer enlistment to the recipient.

#### Presentation

A representative of the Australian Defence Force will present awards to recipients at general school assemblies early in first term of Year 12.

### Educational Qualifications for Admission to UNSW@ADFA in 2006

To be qualified educationally for admission to an undergraduate program at UNSW@ADFA, a candidate must:

- (1) meet the admission requirements of The University of New South Wales;
- (2) have reached a standard of performance in Year 12 of secondary education acceptable to the UNSW@ADFA Academic Board.

#### 1. Admission

- (a) A candidate who completes the Higher School Certificate in the State of New South Wales must meet the admission requirements prescribed for The University of New South Wales.
- (b) A candidate who completes Year 12 in another State and qualifies for admission to an appropriate faculty in a university in that State will meet the requirements provided that in the opinion of the Academic Board there is an acceptable correspondence between the qualifying conditions relied upon by the candidate and the conditions laid down for entry to the nominated degree programs at UNSW@ADFA.

#### 2. Assumed Knowledge

Assumed Knowledge is the level of subject knowledge that a lecturer or a tutor of a first-year UNSW@ADFA course could reasonably expect all students enrolled in that course to know at the outset.

Students who do not have the level of assumed knowledge are not prevented from applying/enrolling when the program begins, but they may be placed at a considerable disadvantage. Any students who have not achieved the recommended level of assumed knowledge are strongly advised that it is in their best interest to undertake a bridging program or other preparation course.



For Mathematics, Physics and Chemistry, suitable preparation, offered as distance-education courses, are the Unilearn Senior Mathematics, Unilearn Senior Physics and Unilearn Senior Chemistry courses respectively. Contact the Queensland Open Learning Network on (07) 3225 8888 or at [www.lng.net.au](http://www.lng.net.au)

## Service Requirements

Applicants should be aware that in addition to the assumed knowledge requirements, there may be additional Service requirements. Contact Defence Recruiting on 13 19 01 for more information.

The actual UAI ranks required for entry into UNSW@ADFA and the specific assumed knowledge requirements for each degree are outlined in the *Undergraduate Guide* which is available from the Student Gateway at [www.unsw.adfa.edu.au/student](http://www.unsw.adfa.edu.au/student).

## 3. Standard of Performance

Entry to the Academy is competitive, and candidates should bear in mind that while selection is not based entirely on academic performance, the admission standards for programs at UNSW@ADFA are similar to those required by the faculties of Arts, Science and Engineering at The University of New South Wales, Kensington.

## Enquiries

Specific enquiries related to educational qualifications should be addressed to:

Student Administrative Services, UNSW@ADFA,  
Australian Defence Force Academy Canberra, A.C.T. 2600

Telephone: (02) 6268 6000 (local students) or  
(+61) 2 6268 6000 (international students)

Email: [sas@adfa.edu.au](mailto:sas@adfa.edu.au)

## Credit for Previous Studies (Advanced Standing)

Credit transfer at undergraduate level is recognition of prior study in a recognised university. At postgraduate level it is recognition of prior postgraduate study in a recognised university.

Where a student receives credit for previous studies it contributes to the units of credit required for the award, and if specified courses or study areas are indicated, may count towards the requirements for a major/specialisation.

In line with UNSW policy regarding advanced standing, students will only be granted credit for studies completed within 10 years of the time at which they enrolled in their current program.

The maximum credit that can be awarded to any UNSW@ADFA program is 50 percent of the total credit required for that program. No credit will be granted for programs where program requirements are less than 24 units of credit.

Courses completed at other institutions will not be included in calculating the UNSW@ADFA Weighted Average Mark (WAM).

Credit transfer does not include cases where students are exempted from compulsory units within a course but not the total unit of credit requirement. This is referred to as substitution.

Further information on applying for credit can be accessed on the Student Gateway at [www.unsw.adfa.edu.au/student/credit](http://www.unsw.adfa.edu.au/student/credit)

## Cross Institutional Language Studies

UNSW@ADFA students can apply to study a language not offered by UNSW@ADFA as a “visiting student” at another University – this is called cross-institutional study. The maximum amount of study which will be approved for cross-institutional enrolment is 48 units of credit.

Approved language courses completed at other Universities can then be credited to the UNSW@ADFA degree and it is possible to complete a language major or minor. Grades obtained for courses studied at other institutions will not be included in calculating your Weighted Average Mark (WAM) at UNSW@ADFA. However, please note that grades for cross-institutional courses will be used by Military staff during MYBOR/EYBOR.

Students who wish to complete studies at another University for credit towards their UNSW@ADFA degree must obtain approval from the Military and the University before enrolling elsewhere and are responsible for their enrolment at both universities.

Further information on cross-institutional studies can be accessed on the Student Gateway at [www.unsw.adfa.edu.au/student/xinst](http://www.unsw.adfa.edu.au/student/xinst)

## Directed Studies Information

Except where outlined below, all undergraduate students must include in their program 12 units of credit for Directed Studies courses in the 2nd or 3rd year of their degree:

ZBUS2801 *Leadership and Management* (6UOC); and,  
ZHSS2002 *An Introduction to Strategic Studies* (6UOC).

## Bachelor of Arts and Bachelor of Science

### Inclusion of ZHSS2002, *Introduction to Strategic Studies*, in a major or minor

ZHSS2002 *An Introduction to Strategic Studies* may be taken as part of a major or minor in History or Politics. If it is, students must choose an additional 6UOC Upper-Level course to make up the 144 units of credit required for their Bachelor of Arts or Bachelor of Science degree.

### ZBUS2801, *Leadership and Management*

Students are exempted from ZBUS2801 *Leadership and Management* if they complete both ZBUS1101 *Organisational Behaviour* and ZBUS2302 *Leadership*. Such students must choose an additional 6UOC Upper-Level course to make up the 144 units of credit required for their Bachelor of Arts or Bachelor of Science degree.

Any student who has completed ZBUS1101 *Organisational Behaviour* but not ZBUS2302 *Leadership* is required to take ZBUS2802 *Leadership and Management (Leadership)* and is excluded from ZBUS2801 *Leadership and Management* and ZBUS2803 *Leadership and Management (Management)*.

## Bachelor of Business

All students enrolled in the Bachelor of Business are exempted from ZBUS2801 *Leadership and Management*.

## Bachelor of Engineering

All students enrolled in the Bachelor of Engineering are exempted from ZBUS2801 *Leadership and Management* (by virtue of meeting the *Leadership and Management* requirement through Approved Equivalent work in the Engineering Schools).

## Bachelor of Technology

All students enrolled in the Bachelor of Technology are exempted from the Directed Studies requirement.

## General Education Information

The General Education requirement in UNSW degrees adds breadth and professional relevance to a degree program. General Education courses are designed to broaden a student's outlook on the world and in areas of study. Every UNSW degree program must include:

Four (4) session-length courses or their equivalent in combinations of session-length and year-long courses; and

Fifty-six (56) hours of study which foster acceptance of professional and ethical action and social responsibility.

### General Education Requirements at UNSW@ADFA

Every UNSW@ADFA degree program must include 12UOC of General Education courses and these courses cannot form part of a major or minor. A range of courses have been specifically designed as General Education courses at UNSW@ADFA and these are offered by a variety of Schools, in a number of discipline areas.

UNSW@ADFA students are deemed to have fulfilled the UNSW requirement in the area of professional and ethical action and social responsibility by virtue of completing their Common Military Training.

## Restrictions on the selection of courses

No student can take a General Education course concurrently with, or subsequent to, a first-year course in the same discipline area.

No more than two General Education courses can be taken from any discipline area, as set out in the General Education Schedule, unless exempt in the degree rules.

Normally, mainstream courses may not be substituted for General Education requirements. However, in exceptional circumstances students may seek to enrol in one 6UOC Level I course as a substitute for two GE courses. This Level I course must be substantially different in nature to the mainstream courses in their degree.

## Objectives of the General Education Program

The following objectives were approved by the Council of the University in December 1994:

1. To provide a learning environment in which students acquire, develop and deploy skills of rational thought and critical analysis.
2. To enable students to evaluate arguments and information.
3. To empower students to challenge systematically received traditions of knowledge, beliefs and values.
4. To enable students to acquire skills and competencies, including written and spoken communication skills.
5. To ensure that students examine the purposes and consequences of their education and experience at University and to foster acceptance of professional and ethical action and the social responsibility of graduates.
6. To foster among students the competence and the confidence to contribute creatively and responsibly to the development of their society.
7. To provide structured opportunities for students from disparate disciplines to interact co-operatively within a learning situation.
8. To provide opportunities for students to explore discipline and paradigm bases other than those of their professional or major disciplinary specialisation through non-specialist subjects offered in those other areas.
9. To provide an environment in which students are able to experience the benefits of moving beyond the knowledge boundaries of a single discipline and explore cross- and inter-disciplinary connections.
10. To provide a learning environment and teaching methodology in which students can bring the approaches of a number of disciplines to bear on a complex problem or issue.

## Schedule of General Education Courses

The following list shows the General Education courses offered, the discipline area they belong to and the degree programs in which they can be included. A=Arts, B=Business, E=Engineering, S=Science, T = Technology.

Course	Short Title	Discipline	Degree	Session
ZGEN2001	Engineering the Environment	Engineering	A, B, S	2
ZGEN2002	The Cockpit and Beyond	Aviation	A, B, S	2
ZGEN2003	The History and Science of Flight	Aviation	A, B, S	1
ZGEN2210	Terrorism & the International Order	Politics/History	B, E, S, T	2
ZGEN2240	Introduction to Ethics	Interdisciplinary	A, B, E, S, T	1
ZGEN2301	Computer Games	Information Technology	A, B, E, T	2
ZGEN2302	The E-Warrior	Information Technology	B, E, S, T	2
ZGEN2303	Tactical Combat Radio Systems	Electrical Engineering	A, B, S,	1
ZGEN2304	Web Sites and Multimedia	Information Technology	A, B, E, T	2
ZGEN2400	Chemical and Biological Warfare: Defence and Disarmament	Chemistry	A, B, E, T	1
ZGEN2401	Astronomy	Physics	A, B, E, T	2
ZGEN2402	Introductory Meteorology	Physics	A, B, E	1
ZGEN2421	Lies, Damned Lies and Statistics	Mathematics	A, B	1
ZGEN5001	Creative Writing	English	B, E, S, T	1
ZGEN5113	Australia & the Asia Pacific	Politics	B, E, S, T	2

## Timetable Information

The times and locations of classes are listed in the UNSW@ADFA Timetable which is available on the Student Gateway at [www.unsw.adfa.edu.au/student/timetables/](http://www.unsw.adfa.edu.au/student/timetables/)

The information displayed indicates the nature of the class. For example A, B, C indicates you must attend each scheduled class, while 1, 2, 3 indicates the group to which you belong.

**Lectures** – in this example you belong to lecture group 1.

ZPEMxxxx/A/01

ZPEMxxxx/B/01

**Laboratories** – in this example you belong to laboratory group 2.

ZPEMxxxx/LAB/A/02

ZPEMxxxx/LAB/B/02

ZPEMxxxx/LAB/C/02

**Tutorials** – in this example you belong to tutorial group 5.

ZPEMxxxx/TUT/A/05

You can also view your timetable after you have enrolled online by selecting Class Timetable in *myUNSW*.

### Mode of Delivery (for Postgraduate Students)

The four characters which appear under the heading “Component” in the *myUNSW* timetable information indicate the mode of delivery. For example:

0001 Indicates the offering is conducted on campus

DM02 Indicates the offering is in distance mode

IDM3 Indicates the offering is in intensive mode

### Course Clashes

To try to study subjects when you cannot attend classes is not sensible. Consequently, the University's online enrolment system *myUNSW* will not allow you to enrol in courses that involve a timetable clash.

You are not permitted to take courses that appear as pairs in the clash tables, which can be accessed on the Student Gateway. For example, in first year, Geography and Physics cannot be taken together.

# SUMMARY TABLE OF PROGRAMS

## Undergraduate Program Codes

Programs	Program Codes
BA Bachelor of Arts	4400
BBus Bachelor of Business	4405
BSc Bachelor of Science	4410
BE Bachelor of Engineering	
Aeronautical Engineering	4424
Civil Engineering	4421
Electrical Engineering	4422
Mechanical Engineering	4423
BTech Bachelor of Technology	
Aeronautical Engineering	4430
Aviation	4437
Articulation Program	
BTech(Aero) to BE(Aero)	4425

## GENERAL AWARD RULES

### UNSW@ADFA Degree Rules

All course schedules listed in the Undergraduate Degree Rules section of the Handbook apply to students who enter degree programs in the year of publication of the Handbook. Students who entered degree programs in other years should consult the program entry in the relevant Handbook for details of required enrolment.

The degree rules:

Specify the total work required to gain a degree;

Ensure that your program of study has suitable breadth and depth;

Build in any special requirements.

### Undergraduate General Award Rules

The General Award Rules apply to all undergraduate degrees.

#### 1.0 Degree Rules Dictionary

- 1.1 "Course" means an area of study in a single discipline or in cognate disciplines, at one level, taken in one session, which is recognised by the University for the purposes of accreditation. Courses are allotted units of credit as defined in the schedules.

- 1.2 "Units of Credit" is a measure of the value of contribution of a course in the degree program. Most courses are worth 3UOC or 6UOC.

Units of credit reflect student workloads: each unit of credit requires approximately 25-30 hours of work which includes private study and class attendance.

#### 2.0 Grant of Awards

- 2.1 To gain the award of a degree a student must -
  - (a) comply with the degree rules; and
  - (b) complete the degree program.
- 2.2 Where, in the degree rules, reference is made to the requirement that a candidate must complete a course, the requirement will be construed as meaning that the candidate must:
  - attend such lectures, seminars and tutorials as are prescribed in that course; and
  - perform satisfactorily in such exercises, laboratory work, essays, theses and examinations as are prescribed in that course.
- 2.3 A candidate may not enrol in a course until they satisfy all pre-requisite conditions specified for that course. They must also satisfy all co-requisite conditions for the course.
- 2.4 A candidate may not enrol in Level II or Upper-Level courses until they have completed appropriate Level I courses (or approved equivalents).
- 2.5 A candidate may not enrol in Level III courses until they have completed appropriate Level II courses (or approved equivalents).

#### 3.0 Multiple Enrolment

- 3.1 No person will normally be permitted to enrol in a degree, diploma or certificate course at The University of New South Wales at the same time as he/she is enrolled for any other degree, diploma or certificate at the University or at any other tertiary institution, except with the approval of the faculty or faculties concerned.

#### 4.0 Directed Studies Courses

- 4.1 Except where outlined below, all undergraduate students must include in their program 12 units of credit for Directed Studies courses, ZBUS2801 *Leadership and Management* and ZHSS2002 *An Introduction to Strategic Studies*;
- 4.2 All students enrolled in the Bachelor of Technology are exempt from the Directed Studies requirement.
- 4.3 All students enrolled in the Bachelor of Engineering are exempt from ZBUS2801 *Leadership and Management* (by virtue of meeting the Leadership and Management requirement through Approved Equivalent work in the Engineering Schools);
- 4.4 All students enrolled in the Bachelor of Business are exempt from ZBUS2801 *Leadership and Management*;

4.5 ZHSS2002 *An Introduction to Strategic Studies* may be taken as part of a major or minor in History or Politics. If it is, students must choose an additional 6UOC Upper-Level course to make up the 144 units of credit required for their Bachelor of Arts or Bachelor of Science degree;

4.6 Students are exempted from ZBUS2801 *Leadership and Management* if they complete both ZBUS1101 *Organisational Behaviour* and ZBUS2302 *Leadership*. Such students must choose an additional 6UOC Upper-Level course to make up the 144 units of credit required for their Bachelor of Arts or Bachelor of Science degree;

4.7 Any student who has completed ZBUS1101 *Organisational Behaviour* but not ZBUS2302 *Leadership* is required to take ZBUS2802 *Leadership and Management (Leadership)* and is excluded from ZBUS2801 *Leadership and Management* and ZBUS2803 *Leadership and Management (Management)*.

## 5.0 General Education courses

5.1 All undergraduate students must include 12UOC of General Education courses in their program; these courses cannot form part of a major or minor.

5.2 No student can take a General Education course concurrently with, or subsequent to, a first-year course in the same discipline area.

5.3 No more than two General Education courses can be taken from any discipline area, as set out in the General Education Schedule, unless exempted in the degree rules.

5.4 Normally, mainstream courses may not be substituted for General Education requirements. However, in exceptional circumstances students may seek to enrol in one 6UOC Level I course as a substitute for two GE courses. This Level I course must be substantially different in nature to the mainstream courses in their degree.

## 6.0 Limit of Pass Conceded (PC)

6.1 A student cannot gain credit for a course at a grade of PC if that would take his or her total of PCs beyond 18 units of credit.

## 7.0 Limitation on enrolment each semester

7.1 In any session, a student cannot enrol for courses having a total value of more than 27 units of credit without the approval of the Registrar's Nominee (Manager, Student Administrative Services).

## 8.0 Advanced Standing (Credit Transfer)

8.1 Advanced Standing, sometimes referred to as credit transfer, may be granted on the basis of previous studies at a University, provided an application for Credit for Previous Study is submitted and approved within the credit cancellation period.

8.2 Substitution is where students are exempt from compulsory courses within a program on the basis of previous studies or experience, but still have to complete the total number of units of credit specified for their degree.

## 9.0 Credit Cancellation Period

9.1 The "credit cancellation period" is 10 years, unless specified otherwise in the program rules.

9.2 No units of credit will count toward any award if ten or more years have elapsed since a student accumulated the units of credit.

## 10.0 Variation of Program or Course Requirements

10.1 Upon sufficient cause being shown, the Presiding Member, Academic Board may, in special cases, vary the requirements of the Degree Rules provided that any proposed variation shall be initiated by a recommendation from the Head of School concerned and the Registrar's Nominee.

# UNDERGRADUATE PROGRAMS

## PROGRAM INFORMATION

### Bachelor of Arts – 4400

#### Program Summary:

**Faculty:** UNSW@ADFA

**School/s:** School of Business; School of Humanities and Social Sciences; School of Information Technology and Electrical Engineering; School of Physical, Environmental and Mathematical Sciences

**Campus:** ADFA

**Award/s:** 4400 Bachelor of Arts and Bachelor of Arts (Honours) (BA and BA (Hons))

**Career:** Undergraduate

**Duration:** 3 years full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 144UOC

#### Program Description:

The BA is a three-year program at pass level and a four-year program at honours level.

Pass-level students in arts should complete their degree programs within three years. Honours students and engineering students who are RAN and RAAF officer cadets continue with their programs at UNSW@ADFA and complete their degrees at the end of the fourth year. Army officer cadets, however, at the end of the third year transfer to the Royal Military College, Duntroon. After completing a year of military training they are commissioned as lieutenants and those who are continuing with honours programs return to the Academy to complete their degree.

#### Program Objectives and Learning Outcomes:

The BA degree rules allow students to include a mix of both Arts and Science courses. A number of elective courses of particular relevance to some students are available.

Students admitted to a degree with sufficient advanced standing may be able to complete a combined degree.

The following Arts discipline areas are available in the BA:

Economics  
English  
Indonesian  
Indonesian-Malay Studies  
Information Systems  
Geography  
History  
Management  
Politics

The following Science discipline areas are available in the BA:

Chemistry  
Computer Science  
Geography  
Information Systems  
Mathematics and Statistics  
Oceanography  
Operations Research and Statistics  
Physics

#### Program Structure:

The BA is one of the most flexible programs available through UNSW@ADFA, allowing you to construct your degree in one of the following three ways:

#### Major plus two Minors

Arts major, plus Arts minor, plus Science or Arts minor

Two Majors

Arts major, plus Arts major

Two Majors plus a Minor

Arts major, plus Science major, plus Arts minor

#### Academic Rules:

#### Pass Degree

##### 1.0 General Award Rules

1.1 A student must comply with the Undergraduate General Award Rules. In the event of a conflict, the rules for the Bachelor of Arts take precedence over the Undergraduate General Award Rules.

##### 2.0 Degree Rules Dictionary

2.1 “Major” means an approved combination of 48 units of credit in the one discipline area, of which at least 36 units of credit are for upper-level courses.

2.2 “Minor” means an approved combination of 24 units of credit in the one discipline area, of which at least 12 units of credit are for upper-level courses.

2.3 “Level I” means courses at an introductory level, normally taken in Year 1.

2.4 “Upper level” means courses at Level II and Level III, normally taken in Years 2 or 3.

2.5 “Arts discipline areas” means Economics, English, Geography, History, Indonesian, Indonesian-Malay Studies, Information Systems, Management and Politics.

2.6 “Science discipline areas” means Chemistry, Computer Science, Geography, Information Systems, Mathematics, Oceanography, Operations Research and Statistics, and Physics.

2.7 “Elective courses” means courses from any related discipline area as identified in Clauses 2.5 and 2.6 above.

### 3.0 Degree Requirements

3.1 A student must obtain, normally over three years of study, a minimum of 144 units of credit, including one of the following combinations (“a”, “b”, or “c”) –

- a). 96 units of credit for two majors from Arts discipline areas; and –
  - i. 24 units of credit for elective courses at Level I.
  - ii. 12 units of credit for Directed Studies courses, including ZBUS2801 *Leadership and Management* and ZHSS2801 *An Introduction to Strategic Studies*, or approved equivalents;
  - iii. 12 units of credit for General Education courses, or approved equivalents, normally taken in the second and third year of study.
- b). 96 units of credit for one major from an Arts discipline area, plus two minors, one of which must be from an Arts discipline area; and -
  - i. 12 units of credit for elective courses at Level I.
  - ii. 12 units of credit for Directed Studies courses, including ZBUS2801 *Leadership and Management* and ZHSS2801 *An Introduction to Strategic Studies*, or approved equivalents;
  - iii. 12 units of credit for General Education courses, or approved equivalents, normally taken in the second and third year of study.
  - iv. 12 units of credit for elective courses at Upper Level.
- c). 120 units of credit for one major from an Arts discipline area, one major from a Science discipline area, and one minor from an Arts discipline area; and -
  - i. 12 units of credit for elective courses at Level I, chosen from Arts discipline areas;
  - ii. 12 units of credit for Directed Studies courses, including ZBUS2801 *Leadership and Management* and ZHSS2801 *An Introduction to Strategic Studies*, or approved equivalents.

3.2 No more than 48 units of credit may be gained for Level I courses.

3.3 36 units of credit for Level I courses must be from Arts discipline areas.

### 4.0 Special Rules

4.1 Students who complete ZBUS1101 and ZBUS2302, must substitute 6 units of credit of upper-level elective courses for the ZBUS2801 *Leadership and Management* requirement.

4.2 Students who complete ZBUS1101 *Organisational Behaviour* but not ZBUS2302 *Leadership*, are required to complete ZBUS2802 *Leadership and Management (Leadership)*. They may not then include the 6UOC course ZBUS2801 *Leadership and Management* or the 3UOC course ZBUS2803 *Leadership and Management (Management)* in their degree.

4.3 Students who include ZHSS2801 *An Introduction to Strategic Studies* as part of a minor or major in either History or Politics are required to take 6 units of credit of upper-level elective courses in place of the Directed Studies requirement set out in rule 3.1 above.

### Honours:

#### Rules governing the award of the degree of Bachelor of Arts with Honours

##### 5.0 Entry

- 5.1 To enrol for the award of the degree at Honours level in one or two specialisations, a student must –
- a). complete the pass-degree program requirements; or -
  - b). gain an approved award from elsewhere; and -
  - c). have achieved at least a credit average (65) across the entire undergraduate program including a credit average over the Level III / upper-level courses in a major sequence which is in the same discipline area as the proposed Honours program.

##### 6.0 Degree Requirements

6.1 A student must obtain, normally over one year of study, a minimum of 48 units of credit in one or two areas of study approved by the Head of School.

##### 7.0 Class of Honours

7.1 The Honours degree is awarded in three classes (Class 1, Class 2 in two Divisions, and Class 3).

### Sample Program:

The programs shown below are samples of those available under the rules for the BA degree. They are intended to illustrate the operation of the degree rules, and to be a ready reference for degree structures, typical programs and the sorts of options available. Nothing in this chapter replaces or modifies any part of the degree rules. This section should be read in conjunction with the Rules governing the award of the degrees of Bachelor of Arts.

NB: In Level I course selections students will also need to select courses that are outside the discipline areas in which they build majors and minors. In some cases students will have to choose Level II or Level III courses to the value of 12UOC outside their major and minor sequences. These courses have been designated as “Electives” for the purposes of the diagrams.

## Option 1

### Bachelor of Arts

	<b>Arts MAJOR</b>	<b>Arts MINOR</b>	<b>Arts or Science MINOR</b>	<b>Electives</b>	<b>General Education</b>	<b>Directed Studies</b>	<b>UOC</b>
	<i>Politics</i>	<i>English</i>	<i>History</i>	<i>Management</i>			
Year 1	12UOC	12UOC	12UOC	12UOC			48
Year 2	12UOC	12UOC	12UOC		6UOC	6UOC	48
Year 3	24UOC			12UOC	6UOC	6UOC	48

## Option 2

### Bachelor of Arts

	<b>Arts MAJOR</b>	<b>Arts MAJOR</b>	<b>Electives</b>	<b>General Education</b>	<b>Directed Studies</b>	<b>UOC</b>
	<i>Indonesian</i>	<i>Economics</i>	<i>English &amp; Chemistry</i>			
Year 1	12UOC	12UOC	24UOC			48
Year 2	12UOC	12UOC		12UOC	12UOC	48
Year 3	24UOC	24UOC				48

## Option 3

### Bachelor of Arts

	<b>Arts MAJOR</b>	<b>Science MAJOR</b>	<b>Arts MINOR</b>	<b>Electives</b>	<b>Directed Studies</b>	<b>UOC</b>
	<i>English</i>	<i>Computer Sc.</i>	<i>Economics</i>	<i>History</i>		
Year 1	12UOC	12UOC	12UOC	12UOC		48
Year 2	12UOC	12UOC	12UOC		12UOC	48
Year 3	24UOC	24UOC				48



# PLAN INFORMATION

## Areas of Study Available in the Humanities and Social Sciences

### Economics

#### Plan Overview

Plan Code/s	AECMA14400 (Major) AECMA24400 (Minor)
Faculty	UNSW@ADFA
School	School of Business
Contact	Undergraduate Co-ordinator

#### Plan Description

Economics is about the ways in which individuals, firms and countries make the best use of their scarce and valuable resources - time, energy, knowledge, land, equipment and muscle power, and it also helps understand the scope for, and deficiencies of, government policy.

#### Plan Structure

##### Minor

For students entering the BA or BSc in 2004 and subsequent years, a minor in Economics comprises:

		UOC S1	S2
<b>Two Level I courses</b>			
ZBUS1102	<i>Introduction to Economics</i>		6
ZBUS1103	<i>Introduction to Accounting and Finance</i>	6	
<b>12 units of credit in two upper-level courses, comprising</b>			
ZBUS2200	<i>Production, Prices and Trade</i>	6	
<i>plus one more chosen from</i>			
ZBUS2001	<i>Quantitative Methods in Economics and Management</i>	6	
ZBUS2202	<i>Growth and Fluctuations in Open Economies</i>		6
ZBUS2203	<i>The Making of Economic Policy</i>		6
ZBUS2204	<i>Asia-Pacific Economic Development</i>	6	
ZBUS2205	<i>Applied Economics</i>	6	
ZBUS2401	<i>Finance</i>		6

Students are required to complete the two Level 1 courses (ZBUS1103 *Introduction to Accounting and Finance* and ZBUS1102 *Introduction to Economics*) before entering upper-level study. Pre-requisite requirements must be met. Full details of Economics courses available in 2006 may be found in the Course Catalogue on page 109.

### Major

For students entering the BA or BSc in 2004 and subsequent years, a major in Economics comprises:

		UOC S1	S2
<b>Two Level I courses</b>			
ZBUS1102	<i>Introduction to Economics</i>		6
ZBUS1103	<i>Introduction to Accounting and Finance</i>	6	
<b>and</b>			
ZBUS2200	<i>Production, Prices and Trade</i>	6	
ZBUS2202	<i>Growth and Fluctuations in Open Economies</i>		6
ZBUS2203	<i>The Making of Economic Policy</i>		6
ZBUS2204	<i>Asia-Pacific Economic Development</i>	6	
<b>and two of the following courses</b>			
ZBUS2001	<i>Quantitative Methods in Economics and Management</i>	6	
ZBUS2401	<i>Finance</i>		6
ZBUS2205	<i>Applied Economics</i>	6	

Students are required to complete the two Level I courses (ZBUS1103 *Introduction to Accounting and Finance* and ZBUS1102 *Introduction to Economics*) before entering upper-level study. Pre-requisite requirements must be met. Full details of Economics courses available in 2006 may be found in the Course Catalogue on page 109.

Students who entered the Academy prior to 2004 should consult with the School of Business on the program they should follow. Information is also available on the School website at [www.unsw.adfa.edu.au/bus](http://www.unsw.adfa.edu.au/bus)

#### Plan Honours

Students must perform in Economics courses taken in the third year to at least a Credit level to be eligible for entry to the Honours year.

## English

### Plan Overview

<b>Plan Code/s</b>	<b>AENGA14400 (Major)</b> <b>AENGA24400 (Minor)</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Humanities and Social Sciences</b>
<b>Contact</b>	<b>Undergraduate Co-ordinator</b>

### Plan Description

In 2006, the first-year courses in English deal with contemporary writing and the media (including science fiction and fantasy writing) and with the experience of war in literature and film. After first year, students in English are able to choose freely from upper-level courses consisting of (a) a series of options devoted to chronological and introductory surveys of major periods of English, American and Australian writing and (b) a range of options including communications, drama, creative writing and literature and film.

### Plan Structure

#### Minor

A minor sequence in English comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZHSS1101	<i>English 1A: Writing the Present, Imagining the Future</i>	6	
ZHSS1102	<i>English 1B: The Experience of War in Fiction and Film</i>		6

**and 12 units of credit in upper-level English courses.**

Full details of English courses available in 2006 may be found in the Course Catalogue on page 118.

#### Major

A major sequence in English comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZHSS1101	<i>English 1A: Writing the Present, Imagining the Future</i>	6	
ZHSS1102	<i>English 1B: The Experience of War in Fiction and Film</i>		6

**and 36 units of credit in upper-level English courses.**

Full details of English courses available in 2006 may be found in the Course Catalogue on page 118.

### Plan Honours

Admission to English Honours is at the discretion of the Head of School. Students enter English Honours at the beginning of their third full year of academic study. Such students will normally enrol, in their second year of English, in two English options in each session.

ZHSS2101 *The English Renaissance* is strongly recommended as one of these options. Admission to third-year English Honours will normally require a pass in four upper-level English courses at credit level or better. Third-year English Honours consists of two upper-level options plus a required Honours course in each session: in Session 1, ZHSS3101 *Classic Literary Texts*, and in Session 2, ZHSS3101 *Issues in Contemporary Criticism and Theory*.

## Geography

### Plan Overview

<b>Plan Code/s</b>	<b>AGOCA14400 (Major)</b> <b>AGOCA24400 (Minor)</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Physical, Environmental and Mathematical Sciences</b>
<b>Contact</b>	<b>Undergraduate Co-ordinator</b>

### Plan Description

All Geography courses are available to both Arts and Science students and the School makes no distinction in curricula between students who are enrolled in the degrees of Bachelor of Arts and Bachelor of Science. Geography is the study of both the physical and human environments in which we live, and the interactions between people and nature. Geography provides a bridge between the social and natural sciences. It provides students with the techniques to analyse our environment and society, including Geographic Information Systems and Remote Sensing.

### Plan Structure

#### Level I Geography

In both Level I courses an integrative approach is developed to the understanding of environmental processes and human activities that take place on the surface of the earth.

Refer to the Course Catalogue listing for Level I Geography syllabus details on page 145.

#### Level II Geography

Geography at Level II offers a range of courses and students can begin to specialise in one of the systematic branches of the discipline, either human or physical geography, or alternatively they can select a mix of courses from these two branches as well as geographical techniques (Remote Sensing and Geographical Information Analysis) and area studies (Asia-Pacific).

Potential honours students are encouraged to take more than 12UOC of Level II Geography.

Refer to the Course Catalogue listing for Level II Geography syllabus details on page 145.

#### Level III Geography

While there is no specified assumed knowledge for Level III Geography courses, it is generally expected that students will have completed some Level II Geography before enrolling in Level III. Students who have not done this should discuss their intended enrolment with the Head of School.

Refer to the Course Catalogue listing for Level III Geography syllabus details on page 145.

### Minor

A minor sequence in Geography comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZPEM1201	<i>Geography 1A (Global Environmental Change)</i>	6	
ZPEM1202	<i>Geography 1B (Geographies of Contemporary Australia)</i>		6

**and 12 units of credit of Level II and/or Level III Geography courses.**  
The course ZINT2505 may also taken as part of the Geography minor.

Full details of Geography courses available in 2006 may be found in the Course Catalogue on page 145.

### Major

A major sequence in Geography comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZPEM1201	<i>Geography 1A (Global Environmental Change)</i>	6	
ZPEM1202	<i>Geography 1B (Geographies of Contemporary Australia)</i>		6

**and 36 units of credit of Level II and/or Level III Geography courses.**

To complete a major in Geography, students must complete at least one Level II course that includes a residential fieldschool, and a Level III Geography course that includes the residential fieldschool, currently ZPEM3208 *Geographic Research Methods*.

Full details of Geography courses available in 2006 may be found in the Course Catalogue on page 145.

### Plan Honours

Geography Honours is designed for students showing a special interest in and aptitude for work in the discipline and who satisfy the requirements for entry into either the degree of Bachelor of Arts with Honours or the degree of Bachelor of Science with Honours. The Honours program provides students with the opportunity to undertake a research project and to present their results in a thesis. Coursework in the form of seminars, lectures and assignments is also normally undertaken.

## History

### Plan Overview

**Plan Code/s** AHISA14400 (Major)  
AHISA24400 (Minor)

**Faculty** UNSW@ADFA

**School** School of Humanities and Social Sciences

**Contact** Undergraduate Co-ordinator

### Plan Description

All the history courses in the School of Humanities and Social Sciences are designed to develop critical intelligence through the study of the past. The School offers a variety of approaches to history, each emphasising the basic disciplinary skills of assimilating and weighing evidence, analysing historical problems, constructing and testing historical hypotheses and presenting conclusions clearly and logically.

These skills are important to both Arts and Science students. The critical and analytical skills that history can impart are useful in whichever specialised branch of the Services cadets may choose.

### Plan Structure

All major and minor sequences in History begin with Level I History. Students have maximum flexibility in completing major or minor sequences. They are able to select their own combinations of single-session courses at upper-level.

In 2006, the first-year courses will consist of two sessional length subjects focussed on the major military and civil conflicts of the twentieth century. As well as the conflicts themselves, students will examine their causes and consequences, in order to gain an understanding of the major forces which have marked the century. At the upper-level students are able to choose from a wide range of courses dealing with the military, social and cultural history of Australia, Asia, Europe and the United States. Full details of History courses available in 2006 may be found in the Course Catalogue on page 118.

### Minor

A minor sequence in History comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZHSS1201	<i>History 1A: Conflicts in Context: Aspects of World History 1900-1941</i>	6	
ZHSS1202	<i>History 1B: Conflicts in Context: Aspects of World History 1941 to the Present</i>		6

**and 12 units of credit of upper-level History courses.**

Full details of History courses available in 2006 may be found in the Course Catalogue on page 118.

**Major**

A major sequence in History comprises:

		UOC S1	S2
<b>Two Level I courses</b>			
ZHSS1201	History 1A: Conflicts in Context: Aspects of World History 1900-1941	6	
ZHSS1202	History 1B: Conflicts in Context: Aspect of World History 1941 to the Present	6	

and 36 units of credit of upper-level History courses.

Full details of History courses available in 2006 may be found in the Course Catalogue on page 118.

**Plan Honours**

There is a strong Honours program in History which includes Honours courses at third and fourth year levels. Admission to History Honours is at the discretion of the Head of School. Interested students should inquire at the School office.

**Indonesian****Plan Overview**

**Plan Code/s** AINDA14400 (Major)  
AINDA24400 (Minor)

**Faculty** UNSW@ADFA

**School** School of Humanities and Social Sciences

**Contact** Undergraduate Co-ordinator

**Plan Description**

Two streams of Indonesian language and culture are available at UNSW@ADFA as detailed under the options for constructing major or minor sequences in Indonesian.

**Plan Structure**

Minor (students who have little or no prior knowledge of Indonesian)

A minor sequence in Indonesian comprises:

		UOC S1	S2
ZHSS1301	Indonesian 1A	6	
ZHSS1302	Indonesian 1B		6
ZHSS2301	Indonesian 2A	6	
ZHSS2302	Indonesian 2B		6

Full details of Indonesian courses available in 2006 may be found in the Course Catalogue on page 118.

**Major (Students who have little or no prior knowledge of Indonesian)**  
**A major sequence in Indonesian comprises**

		UOC S1	S2
ZHSS1301	Indonesian 1A	6	
ZHSS1302	Indonesian 1B		6
ZHSS2301	Indonesian 2A	6	
ZHSS2302	Indonesian 2B		6
ZHSS3301	Indonesian 3A	12	
ZHSS3302	Indonesian 3B		12

Full details of Indonesian courses available in 2006 may be found in the Course Catalogue on page 118.

**Minor**

**(Students who have completed Year 12 or its equivalent)**

A minor sequence in Indonesian comprises:

		UOC S1	S2
ZHSS1303	Intermediate Indonesian 1C	6	
ZHSS1304	Intermediate Indonesian 1D		6
ZHSS2303	Advanced Indonesian 2C	12	
ZHSS2304	Advanced Indonesian 2D		12

Full details of Indonesian courses available in 2006 may be found in the Course Catalogue on page 118.

**Major**

**(Students who have completed Year 12 or its equivalent)**

A major sequence in Indonesian comprises:

		UOC S1	S2
ZHSS1303	Intermediate Indonesian 1C	6	
ZHSS1304	Intermediate Indonesian 1D		6
ZHSS2303	Advanced Indonesian 2C	12	
ZHSS2304	Advanced Indonesian 2D		12
ZHSS3303	Reading Course in Indonesian I	12	
ZHSS3304	Reading Course in Indonesian II		12

Full details of Indonesian courses available in 2006 may be found in the Course Catalogue on page 118.

**Plan Honours**

Honours in Indonesian is not yet available, but may be offered in the future.

## Indonesian – Malay Studies

### Plan Overview

**Plan Code/s** ZHSSIM4400

**Faculty** UNSW@ADFA

**School** School of Humanities and Social Sciences

**Contact** Undergraduate Co-ordinator

### Plan Description

The School of Humanities and Social Sciences offers a minor in Indonesian-Malay Studies which includes study of Indonesian and Malay history, society and politics and culture. The minor consists of courses taught by staff within the Indonesian, Politics and History disciplines. Enrolment in the minor does not require any language study.

### Plan Structure

Students commence the minor in their second year, with 12 Units of Credit in first-year History, Indonesian or Politics serving as prerequisites for each of the courses which form the minor.

#### Minor

After completion of the prerequisites at Level I, a minor sequence in Indonesian-Malay Studies comprises:

**Any 24 units of credit in courses designated as forming part of the Indonesian-Malay Studies minor.**

Full details of Indonesian-Malay Studies courses available in 2006 may be found in the Course Catalogue on page 118.

## Information Technology

Most, if not all, positions today require military and civilian officers to be information technology literate, to be able to think logically and to make well-reasoned decisions. To develop skills in these areas officers can undertake studies within the School of Information Technology and Electrical Engineering.

**Computer Science** is the study of computers and computation which covers the design, operational characteristics and control of computers. Teaching concentrates on algorithm specification, data structures, programming languages, operating systems and computer networks with a focus on software engineering, followed by project design and implementation. Computer Science is a Science discipline.

**Information Systems** concentrates on the application of computer systems to information processing and control. It accentuates the role of information in the service of management. It looks at the analysis, design and implementation of systems and the application of technology. Information Systems is an Arts or Science discipline.

**Operations Research and Statistics (ORS)** involves applying mathematical models to the solution of problems encountered by individuals, groups and organisations. The techniques are also applicable in the civilian world, for example banking, mining, the oil industry, and transportation. Operations Research and Management Sciences provide insight into decision-making. ORS is a Science discipline.

## Information Systems

### Plan Overview

**Plan Code/s** ACSCB14400 (Major)  
ACSCB24400 (Minor)

**Faculty** UNSW@ADFA

**School** Information Technology and Electrical Engineering

**Contact** Undergraduate Co-ordinator

### Plan Description

The study of Information Systems concentrates on the application of computer systems to information processing and control. It is distinguished from Computer Science in that it accentuates the role of information in the service of management, and thus is interested in the analysis, design and implementation of systems rather than the computer itself. A "systems view" is taken throughout, where the organisational context for an information system is stressed. In the first two years the teaching is principally in the areas of information analysis and the mastery of the tools and techniques used to model systems and then implement them. The final year of the three-year program has a core concentration in software project lifecycle management. This third-year work is oriented strongly to Defence-related computing projects with direct Service input and guidance. Typical examples which have been undertaken include the analysis of computing support requirements, the design and implementation of various data and graphical applications, and the construction of Web sites and virtual environments.

### Plan Structure

#### Minor

A minor sequence in Information Systems comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZITE1301	<i>Introduction to Information Systems</i>	6	
ZITE1302	<i>Information Systems in Organisations</i>		6
<b>and 2 specified Level II courses in Information Systems:</b>			
ZITE2301	<i>Design of Information Systems</i>	6	
ZITE2302	<i>Operation of Information Systems</i>		6

Full details of Information Systems courses available in 2006 may be found in the Course Catalogue on page 131.

**Major**

A major sequence in Information Systems comprises:

		UOC S1	S2
<b>Two Level I courses</b>			
ZITE1301	<i>Introduction to Information Systems</i>	6	
ZITE1302	<i>Information Systems in Organisations</i>		6
<b>and 2 specified Level II courses in Information Systems:</b>			
ZITE2301	<i>Design of Information Systems</i>	6	
ZITE2302	<i>Operation of Information Systems</i>		6
<b>plus 4 specified Level III courses:</b>			
ZITE3301	<i>Applications of Information Systems</i>		6
ZITE3302	<i>Management of Work Systems</i>	6	
ZITE3303	<i>Selection of Systems</i>	6	
ZITE3304	<i>Computing Project – Information Systems</i>		6

Full details of Information Systems courses available in 2006 may be found in the Course Catalogue on page 131.

**Plan Honours**

Students wishing to take an Honours program in Information Systems need to take the full Information Systems major sequence as listed above. In their fourth year of study they undertake the following courses.

		UOC S1	S2
<b>Full Time</b>			
ZITE4303	<i>Information Systems 4 (Honours)</i>	24	24
<b>Part Time</b>			
ZITE4304	<i>Information Systems 4 (Honours)</i>	12	12

It is also possible to do a combined Honours program in Information Systems and another discipline. Students wishing to take such a combined Honours program need to take the full Information Systems major sequence as listed above. In their fourth year of study they undertake the following courses.

		UOC S1	S2
<b>Full Time</b>			
ZITE4301	<i>Information Systems 4 (Combined Honours)</i>	24	24
<b>Part Time</b>			
ZITE4302	<i>Information Systems 4 (Combined Honours)</i>	12	12

Students interested in taking an Honours program are advised to contact the School Office early in the year prior to the proposed Honours year.

**Operations Research and Statistics****Plan Overview**

<b>Plan Code/s</b>	<b>AINTK14400 (Major) AINTK24400 (Minor)</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Undergraduate Co-ordinator</b>

**Plan Description**

Applying mathematical models to the solution of problems encountered by individuals, groups and organisations became a science during World War II and is now known as Operations Research or Management Science. The techniques developed were, after the war, modified and extended to be applicable in the civilian world, in areas such as banking, mining, the oil industry, transportation and many others. Today, the study of Operations Research and Management Science provides insight into decision making.

***Study in Operations Research and Statistics (taught jointly with the School of Physical, Environmental and Mathematical Sciences) is only available as a minor.***

**Plan Structure****Minor**

A minor sequence in Operations Research and Statistics comprises:

		UOC S1	S2
<b>Two Level I courses</b>			
<b>Either</b>			
ZITE1101	<i>Introduction to Computer Science</i>	6	
ZITE1102	<i>Programming Fundamentals</i>		6

**or**

ZITE1301	<i>Introduction to Information Systems</i>	6	
ZITE1302	<i>Information Systems in Organisations</i>		6

**Students are also encouraged to take the following courses as electives in their degree:**

ZPEM1301	<i>Mathematics 1A</i>	6	
ZPEM1302	<i>Mathematics 1B</i>		6

**plus 12 units of credit from the following elective courses:**

**Level II Information Technology courses:**

ZITE2401	<i>Computer Tools for Decision Making</i>		3
ZITE2402	<i>Decision Analysis</i>	3	

**Level II Statistics courses:**

ZPEM2302	<i>Data Analysis</i>	3	
ZPEM2306	<i>Regression Modelling</i>		3

Full details of Operations Research and Statistics courses available in 2006 may be found in the Course Catalogue on page 131.

## Plan Honours

Honours is not currently available in Operations Research and Statistics.

## Management

### Plan Overview

**Plan Code/s** AECMA14400 (Major)  
AECMA24400 (Minor)

**Faculty** UNSW@ADFA

**School** School of Business

**Contact** Undergraduate Co-ordinator

### Plan Description

Management is about good decision-making in organisations in relation to human, financial and physical resources. The aim is to understand how to work successfully towards achieving the best outcomes for an organisation, taking account of competing opportunities and continuous change in an uncertain business environment.

### Plan Structure

#### Minor

A minor sequence in Management for students entering the BA or BSc in 2004 and subsequent years comprises:

		UOC S1	S2
<b>Two Level I courses</b>			
ZBUS1101	Organisational Behaviour		6
ZBUS1103	Introduction to Accounting and Finance	6	
<b>and 12 units of credit in upper-level courses chosen from the following:</b>			
ZBUS2001	Quantitative Methods in Economics and Management	6	
ZBUS2101	Business Law	6	
ZBUS2102	Project Management	6	
ZBUS2103	Human Resource Management		6
ZBUS2301	Management Accounting		6
ZBUS2302	Leadership	6	
ZBUS2303	Logistics Management		6
ZBUS2401	Finance		6
ZITE2001	Managing Information Systems		6

Full details of Management courses available in 2006 may be found in the Course Catalogue on page 109.

## Major

A major sequence in Management for students entering the BA or BSc in 2004 and subsequent years comprises:

		UOC S1	S2
<b>Two Level I courses</b>			
ZBUS1101	Organisational Behaviour		6
ZBUS1103	Introduction to Accounting and Finance	6	
<b>and 36 units of credit in upper-level courses chosen from the following:</b>			
ZBUS2001	Quantitative Methods in Economics and Management	6	
ZBUS2101	Business Law	6	
ZBUS2102	Project Management	6	
ZBUS2103	Human Resource Management		6
ZBUS2301	Management Accounting		6
ZBUS2302	Leadership	6	
ZBUS2303	Logistics Management		6
ZBUS2401	Finance		6
ZITE2001	Managing Information Systems		6

Full details of Management courses available in 2006 may be found in the Course Catalogue on page 109.

Students who entered the Academy prior to 2004 should consult with the School of Business on the program that they should follow. Information is also available on the School website at [www.unsw.adfa.edu.au/bus](http://www.unsw.adfa.edu.au/bus)

## Plan Honours

Students must perform in Management courses taken in the third year to at least a Credit level to be eligible for entry to the Honours year.

## Politics

### Plan Overview

**Plan Code/s** APOLA14400 (Major)  
APOLA24400 (Minor)

**Faculty** UNSW@ADFA

**School** School of Humanities and Social Sciences

**Contact** Undergraduate Co-ordinator

### Plan Description

The School of Humanities and Social Sciences offers courses which introduce students to the major ideas and issues of politics, both domestic and international. The teaching program is designed, in the first year, to introduce students to the study of politics.

In upper years, the teaching program focuses on:

- studying the political systems of countries that are of strategic significance to Australia
- exploring the nature of security and relations between states in the international system
- analysing security challenges in regions of significance to Australia
- and exploring some advanced topics in political analysis.

## Plan Structure

### Minor

A minor sequence in Politics comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZHSS1401	<i>Politics 1A</i>	6	
ZHSS1402	<i>Politics 1B</i>		6

### and 12 units of credit in upper-level Politics courses

Full details of Politics courses available in 2006 may be found in the Course Catalogue on page 118.

### Major

A major sequence in Politics comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZHSS1401	<i>Politics 1A</i>	6	
ZHSS1402	<i>Politics 1B</i>		6

### and 36 units of credit in upper-level Politics courses

Full details of Politics courses available in 2006 may be found in the Course Catalogue on page 118.

## Plan Honours

The School of Humanities and Social Sciences offers a fourth-year honours program consisting of coursework and sub-thesis which expands and further develops the intellectual skills of our best students. Admission to Politics honours is at the discretion of the Head of School. Interested students should inquire at the School office.

# PROGRAM INFORMATION

## Bachelor of Science – 4410

### Program Summary:

**Faculty:** UNSW@ADFA

**School/s:** School of Physical, Environmental and Mathematical Sciences; School of Information Technology and Electrical Engineering; School of Business; School of Humanities and Social Sciences.

**Campus:** ADFA

**Award/s:** 4410 Bachelor of Science and Bachelor of Science (Honours) (BSc and BSc (Hons))

**Career:** Undergraduate

**Duration:** 3 years full-time or part-time equivalent plus an additional year for Honours.

**UOC per session:** 24UOC (full-time)

**UOC for award:** 144UOC

### Program Description:

The BSc is a three-year program at pass level and a four-year program at honours level. Science is the understanding of the physical universe (from sub-atomic particles and microbes through to the planet's environment and the origin of the universe itself), and human interactions with it. Just as important is the scientific process by which this understanding is gained. In turn, science is the foundation of the modern technologies that enhance the quality of lives and provide ever more sophisticated means of applying the scientific process. In addition, science is crucial in control of disease, biotechnology, new sustainable energy sources, information technology, and management of precious natural resources.

Pass-level students in Science should complete their degree programs within three years. Honours students who are RAN and RAAF officer cadets continue with their programs at UNSW@ADFA and complete their degrees at the end of the fourth year. Army officer cadets, however, at the end of the third year transfer to the Royal Military College, Duntroon. After completing a year of military training they are commissioned as lieutenants and those who are continuing with honours programs return to the Academy to complete their degree.

### Program Objectives and Learning Outcomes:

The BSc degree rules allows students to include a mix of both Arts and Science courses. A number of elective courses of particular relevance to some students are available.

Students admitted to a degree with sufficient advanced standing may be able to complete a combined degree.



The following Science discipline areas are available in the BSc:

Chemistry  
Computer Science  
Geography  
Information Systems  
Mathematics and Statistics  
Oceanography  
Operations Research and Statistics  
Physics

The following Arts discipline areas are available in the BSc:

Economics  
English  
History  
Indonesian  
Management  
Politics

### Program Structure:

The BSc is one of the most flexible programs available through UNSW@ADFA, allowing you to construct your degree in one of the following three ways:

#### Major plus two Minors

Science major, plus Science minor, plus Science or Arts minor

#### Two Majors

Science major, plus Science major

#### Two Majors plus a Minor

Science major, plus Arts major, plus Science minor

### Academic Rules:

#### Pass Degree

##### 1.0 General Award Rules

- 1.1 A student must comply with the Undergraduate General Award Rules. In the event of a conflict, the rules for the Bachelor of Science take precedence over the Undergraduate General Award Rules.

##### 2.0 Degree Rules Dictionary

- 2.1 “Major” means an approved combination of 48 units of credit in the one discipline area, of which at least 36 units of credit are for upper-level courses.
- 2.2 “Minor” means an approved combination of 24 units of credit in the one discipline area, of which at least 12 units of credit are for upper-level courses.
- 2.3 “Level I” means courses at an introductory level, normally taken in Year 1.
- 2.4 “Upper level” means courses at Level II and Level III, normally taken in Years 2 or 3.
- 2.5 “Science discipline areas” means Chemistry, Computer Science, Geography, Information Systems, Mathematics and Statistics, Oceanography, Operations Research and Statistics, and Physics.

- 2.6 “Arts discipline areas” means Economics, English, Geography, History, Indonesian, Indonesian-Malay Studies, Information Systems, Management and Politics.

- 2.7 “Elective courses” means courses from any related discipline area as identified in Clauses 2.5 and 2.6 above.

### 3.0 Degree Requirements

- 3.1 A student must obtain, normally over three years of study, a minimum of 144 units of credit, including one of the following combinations (“a”, “b”, or “c”) –
  - a). 96 units of credit for two majors from Science discipline areas; and –
    - i. 24 units of credit for elective courses at Level I.
    - ii. 12 units of credit for Directed Studies courses, including ZBUS2801 *Leadership and Management* and ZHSS2002 *An Introduction to Strategic Studies*, or approved equivalents;
    - iii. 12 units of credit for General Education courses, or approved equivalents, normally taken in the second and third year of study.
  - b). 96 units of credit for one major from a Science discipline area, plus two minors, one of which must be from a Science discipline area; and –
    - i. 12 units of credit for elective courses at Level I.
    - ii. 12 units of credit for Directed Studies courses, including ZBUS2801 *Leadership and Management* and ZHSS2002 *An Introduction to Strategic Studies*, or approved equivalents;
    - iii. 12 units of credit for General Education courses, or approved equivalents, normally taken in the second and third year of study;
    - iv. 12 units of credit for elective courses at Upper Level.
  - c). 120 units of credit for one major from a Science discipline area, one major from an Arts discipline area, and one minor from a Science discipline area; and –
    - i. 12 units of credit for elective courses at Level I, chosen from a Science discipline area;
    - ii. 12 units of credit for Directed Studies courses, including ZBUS2801 *Leadership and Management* and ZHSS2002 *An Introduction to Strategic Studies*, or approved equivalents.
- 3.2 No more than 48 units of credit may be gained for Level I courses.
- 3.3 36 units of credit for Level I courses must be from Science discipline areas.

#### 4.0 Special Rules

- 4.1 Students who complete a major or a minor in Management, which includes ZBUS1101 and ZBUS2302, must substitute 6 units of credit of upper-level elective courses for the ZBUS2801 *Leadership and Management* requirement.
- 4.2 Students who complete a major or a minor in Management, which includes ZBUS1101 but not ZBUS2302, are required to complete ZBUS2802. Such students cannot include ZBUS2801 or ZBUS2803 in their degree.
- 4.3 Students who include ZHSS2002 *An Introduction to Strategic Studies* as part of a minor or major in either History or Politics are required to take 6 units of credit of upper-level elective courses in place of the Directed Studies requirement set out in rule 3.1 above.

#### Honours

##### Rules governing the award of the degree of Bachelor of Science with Honours

#### 5.0 Entry

- 5.1 To enrol for the award of the degree at Honours level in one or two specialisations, a student must –
- complete the pass-degree program requirements;
  - gain an approved award from elsewhere;

and -

- have achieved at least a credit average (65) across the entire undergraduate program including a credit average over the Level III courses in a major sequence which is in the same discipline area as the proposed Honours program.

#### 6.0 Degree Requirements

- 6.1 A student must obtain, normally over one year of study, a minimum of 48 units of credit in one or two areas of study approved by the Head of School.

#### 7.0 Class of Honours

- 7.1 The Honours degree is awarded in three classes (Class 1, Class 2 in two Divisions, and Class 3).

#### Sample Program:

The programs shown below are samples of those available under the rules for the BSc degree. They are intended to illustrate the operation of the degree rules, and to be a ready reference for degree structures, typical programs and the sorts of options available. Nothing in this chapter replaces or modifies any part of the degree rules. This section should be read in conjunction with the rules governing the award of the degrees of Bachelor of Science.

NB: In Level I course selections students will need to select courses that are outside the discipline areas in which they build majors and minors. In the case of combination (b) of Rule 3.1, students will have to choose Level II or Level III courses to the value of 12UOC outside their major and minor sequences. These courses have been designated as “Electives” for the purposes of the diagrams.

#### Option 1

##### Bachelor of Science

	Science MAJOR	Science MINOR	Arts or Science MINOR	Electives	General Education	Directed Studies	UOC
	<i>Mathematics</i>	<i>Oceanography</i>	<i>Physics</i>	<i>Politics</i>			
Year 1	12UOC	12UOC	12UOC	12UOC			48
Year 2	12UOC	12UOC	12UOC		6UOC	6UOC	48
Year 3	24UOC			12UOC	6UOC	6UOC	48

#### Option 2

##### Bachelor of Science

	Science MAJOR	Science MAJOR	Electives	General Education	Directed Studies	UOC
	<i>Chemistry</i>	<i>Mathematics</i>	<i>Physics &amp; Economics</i>			
Year 1	12UOC	12UOC	24UOC			48
Year 2	12UOC	12UOC		12UOC	12UOC	48
Year 3	24UOC	24UOC				48

#### Option 3

##### Bachelor of Science

	Science MAJOR	Arts MAJOR	Science MINOR	Electives	Directed Studies	UOC
	<i>Computer Sc.</i>	<i>Management</i>	<i>Ops Research &amp; Stats</i>	<i>Oceanography</i>		
Year 1	12UOC	12UOC	12UOC	12UOC		48
Year 2	12UOC	12UOC	12UOC		12UOC	48
Year 3	24UOC	24UOC				48

# PLAN INFORMATION

## Areas of Study Available in the Sciences

### Chemistry

#### Plan Overview

<b>Plan Code/s</b>	<b>ACHMA14400 (Major)</b> <b>ACHMA24400 (Minor)</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Physical, Environmental and Mathematical Sciences</b>
<b>Contact</b>	<b>Undergraduate Co-ordinator</b>

#### Plan Description

Chemistry is a foundation science of civilisation and is central to modern technology and medicine. It has developed from early studies of medicine and metallurgy in many parts of the world including Africa, Asia and Europe and developed into its modern form after the European Renaissance. Australians have won six Nobel prizes in sciences to date, including a Nobel Prize for Chemistry (Cornforth, 1975). Nobel Prizes for Physics led to major advances in chemistry, biology and materials science (W.H. Bragg, W.L. Bragg, 1915), while those in Medicine contained substantial chemical components (Florey, 1945, MacFarlane Burnett, 1960, Eccles, 1963, and Doherty, 1996).

Chemistry is science at the molecular level, and science and arts degree programs built around Chemistry courses are a very sound basis for a liberal and balanced education. Chemical science underpins defence technology at every level from lasers and high-speed computers to food science and energetic materials. Ordnance and Engineering are particular areas where ADFA Chemistry majors have found employment.

The Chemistry of materials is taught at UNSW@ADFA in support of the BE and BTech programs for Engineering, Technology and Aviation students. The contributions of Chemistry and chemists to the modern world are taught as part of the UNSW program of elective General Education courses for students of the Humanities and Social Sciences (BA), Engineering (BE) and Technology (BTech).

Chemistry is divided into several sub-fields, and the School has strengths in Physical and Theoretical Chemistry, Inorganic and Biological Chemistry. Academic staff actively carry out research in these fields. Fourth-year Honours and higher-degree by research (MSc, PhD) programs are available within a range of specified areas.

### Plan Structure

#### Minor

A minor sequence in Chemistry comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZPEM1101	<i>Chemistry 1A</i>	6	
ZPEM1102	<i>Chemistry 1B</i>		6

#### plus 12 units of credit of Level II Chemistry courses:

ZPEM2101	<i>Inorganic Chemistry 2</i>		3
ZPEM2102	<i>Organic Chemistry 2</i>	3	
ZPEM2103	<i>Physical Chemistry 2</i>		3
ZPEM2109	<i>Environmental Chemistry</i>	3	

Full details of Chemistry courses available in 2006 may be found in the Course Catalogue on page 145.

#### Major

A major sequence in Chemistry comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZPEM1101	<i>Chemistry 1A</i>	6	
ZPEM1102	<i>Chemistry 1B</i>		6

#### plus 12 units of credit of Level II Chemistry courses:

ZPEM2101	<i>Inorganic Chemistry 2</i>		3
ZPEM2102	<i>Organic Chemistry 2</i>	3	
ZPEM2103	<i>Physical Chemistry 2</i>		3
ZPEM2109	<i>Environmental Chemistry</i>	3	

#### and 24 units of credit of Level III Chemistry courses:

ZPEM3101	<i>Inorganic Chemistry 3</i>		6
ZPEM3106	<i>Biological Chemistry</i>		6
ZPEM3107	<i>Explosives</i>		6
ZPEM3103	<i>Physical Chemistry 3</i>		6

Full details of Chemistry courses available in 2006 may be found in the Course Catalogue on page 145.

### Plan Honours

ZPEM4101 *Honours Chemistry* is offered as part of the Degree of Bachelor of Science with Honours program. The course allows students to develop their own research program under the supervision of academic staff and hence to incorporate higher-level skills and a greater depth of scientific experience in their university studies. Such projects usually lead to new science and publication in scientific journals. Students nominate for selection through their respective Services in Session 2 of third-year studies at the Academy. UNSW@ADFA requires high achievement in the Chemistry components of the normal pass degree, with a credit average or higher at Level III and an overall credit average or better for the BSc program. Prospective honours students are invited to discuss projects with the Head of School and academic staff early in their third year.

## Geography

### Plan Overview

<b>Plan Code/s</b>	<b>AGOCA14400 (Major)</b> <b>AGOCA24400 (Minor)</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Physical, Environmental and Mathematical Sciences</b>
<b>Contact</b>	<b>Undergraduate Co-ordinator</b>

### Plan Description

All Geography courses are available to both Arts and Science students and the School makes no distinction in curricula between students who are enrolled in the degrees of Bachelor of Arts and Bachelor of Science.

Geography is the study of both the physical and human environments in which we live and the interactions between people and nature. Geography provides a bridge between the social and natural sciences. It provides students with the techniques to analyse our environment and society, including Geographic Information Systems and Remote Sensing.

### Plan Structure

#### Level I Geography

In both Level I courses an integrative approach is developed to the understanding of environmental processes and human activities that take place on the surface of the earth.

Refer to the Course Catalogue listing for Level I Geography syllabus details on page 145.

#### Level II Geography

Geography at Level II offers a range of courses and students can begin to specialise in one of the systematic branches of the discipline, either human or physical geography, or alternatively they can select a mix of courses from these two branches as well as geographical techniques (Remote Sensing and Geographical Information Analysis) and area studies (Asia-Pacific).

Potential honours students are encouraged to take more than 12 UOC of Level II Geography.

Refer to the Course Catalogue listing for Level II Geography syllabus details on page 145.

#### Level III Geography

While there is no specified assumed knowledge for Level III Geography courses, it is generally expected that students will have completed some Level II Geography before enrolling in Level III. Students who have not done this should discuss their intended enrolment with the Head of School.

Refer to the Course Catalogue listing for Level III Geography syllabus details on page 145.

### Minor

A minor sequence in Geography comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZPEM1201	Geography 1A (Global Environmental Change)	6	
ZPEM1202	Geography 1B (Geographies of Contemporary Australia)		6

**and 12 units of credit of Level II and/or Level III Geography courses.**  
The course ZINT2505 may also taken as part of the Geography minor.

Full details of Geography courses available in 2006 may be found in the Course Catalogue on page 145.

### Major

A major sequence in Geography comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZPEM1201	Geography 1A (Global Environmental Change)	6	
ZPEM1202	Geography 1B (Geographies of Contemporary Australia)		6

**and 36 units of credit of Level II and/or Level III Geography courses.**

To complete a major in Geography, students must complete at least one Level II course that includes a residential fieldschool, and a Level III Geography course that includes the residential fieldschool, currently ZPEM3208 *Geographic Research Methods*.

Full details of Geography courses available in 2006 may be found in the Course Catalogue on page 145.

### Plan Honours

Geography Honours is designed for students showing a special interest in and aptitude for work in the discipline and who satisfy the requirements for entry into either the degree of Bachelor of Arts with Honours or the degree of Bachelor of Science with Honours. The Honours program provides students with the opportunity to undertake a research project and to present their results in a thesis. Coursework in the form of seminars, lectures and assignments is also normally undertaken.

## Information Technology

Most, if not all, positions today require military and civilian officers to be information technology literate, to be able to think logically and to make well-reasoned decisions. To develop skills in these areas students can undertake studies within the School of Information Technology and Electrical Engineering.

**Computer Science** is the study of computers and computation which covers the design, operational characteristics and control of computers.

Teaching concentrates on algorithm specification, data structures, programming languages, operating systems and computer networks with a focus on software engineering, followed by project design and implementation.

**Information Systems** concentrates on the application of computer systems to information processing and control. It accentuates the role of information in the service of management. It looks at the analysis, design and implementation of systems and the application of technology.

**Operations Research and Statistics** involves applying mathematical models to the solution of problems encountered by individuals, groups and organisations. The techniques are also application in the civilian world, for example banking, mining, the oil industry, and transportation. Operations Research and Management Sciences provide insight into decision-making.

## Computer Science

### Plan Overview

**Plan Code/s** ACSCA14400 (Major)  
ACSCA24400 (Minor)

**Faculty** UNSW@ADFA

**School** Information Technology and  
Electrical Engineering

**Contact** Undergraduate Co-ordinator

### Plan Description

The study of Computer Science is intimately linked with the study of the modern digital computer, its design, operational characteristics and control. Teaching is concentrated principally in the areas of algorithm specification, data structures, programming languages, operating systems, computer networks and artificial intelligence. The final year of the three-year program has a core concentration in software engineering, followed by project design and implementation. This third-year work is oriented strongly to Defence-related computing projects with direct Service input and guidance. Typical examples which have been undertaken include resource allocation studies for RAAF, system specification for the RAN Command Centre, war-gaming projects for Army, RAAF Staff College and for the ADF Warfare Centre.

## Plan Structure

### Minor

A minor sequence in Computer Science comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZITE1101	Introduction to Computer Science	6	
ZITE1102	Programming Fundamentals		6

### and 2 specified Level II courses in Computer Science:

ZITE2102	Computing Technology	6	
ZITE2101	Computer Languages and Algorithms		6

Full details of Computer Science courses available in 2006 may be found in the Course Catalogue on page 131.

### Major

A major sequence in Computer Science comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZITE1101	Introduction to Computer Science	6	
ZITE1102	Programming Fundamentals		6

### and 2 specified Level II courses in Computer Science:

ZITE2102	Computer Technology	6	
ZITE2101	Computer Languages and Algorithms		6

### plus specified Level III courses:

ZITE3110	Software Engineering	6	
ZITE3103	Data Structures and Representation	6	
ZITE3101	Computing Project – Computer Science		6
	2 x Computer Science Electives		6

*Elective courses for Computer Science  
(not all offered in any one year):*

ZITE2401	Computer Tools for Decision Making		3
ZITE3102	Cryptography		3
ZITE2402	Decision Analysis	3	
ZITE3104	Electronic Commerce		3
ZITE3105	Human Computer Interaction	3	
ZITE3106	Interactive Computer Graphics		3
ZITE3107	Multimedia and Virtual Environments		3
ZITE3108	Java Programming Applications		3
ZITE3109	Knowledge Based Systems		3
ZITE3404	Simulation	3	
ZITE3111	Special Topic	3	3

In addition, students may also choose up to one of the following courses as an elective

ZITE3211	Microcomputer Interfacing	3	
ZITE4204	Communications Networks		3
ZITE4207	Digital Image Processing and Remote Sensing		3

Full details of Computer Science courses available in 2006 may be found in the Course Catalogue on page 131.

## Plan Honours

Student wishing to take an Honours program in Computer Science need to take the full Computer Science major sequence as listed above. In their fourth year of study they undertake the following courses.

		UOC	
		S1	S2
<b>Full Time</b>			
ZITE4103	Computer Science 4 (Honours)	24	24
<b>Part Time</b>			
ZITE4104	Computer Science 4 (Honours)	12	12

It is also possible to do a combined Honours program in Computer Science and another discipline. Students wishing to take such a combined Honours program need to take the full Computer Science major sequence as listed above. In their fourth year of study they undertake the following courses.

		UOC	
		S1	S2
<b>Full Time</b>			
ZITE4101	Computer Science 4 (Combined Honours)	24	24
<b>Part Time</b>			
ZITE4102	Computer Science 4 (Combined Honours)	12	12

Students interested in taking an Honours program are advised to contact the School Office early in the year prior to the proposed Honours year.

## Information Systems

### Plan Overview

<b>Plan Code/s</b>	ACSCB14400 (Major) ACSCB24400 (Minor)
<b>Faculty</b>	UNSW@ADFA
<b>School</b>	Information Technology and Electrical Engineering
<b>Contact</b>	Undergraduate Co-ordinator

### Plan Description

The study of Information Systems concentrates on the application of computer systems to information processing and control. It is distinguished from Computer Science in that it accentuates the role of information in the service of management, and thus is interested in the analysis, design and implementation of systems rather than the computer itself. A "systems view" is taken throughout, where the organisational context for an information system is stressed. In the first two years the teaching is principally in the areas of information analysis and the mastery of the tools and techniques used to model systems and then implement them. The final year of the three-year program has a core concentration in software project lifecycle management.

This third-year work is oriented strongly to Defence-related computing projects with direct Service input and guidance. Typical examples which have been undertaken include the analysis of computing support requirements, the design and implementation of various data and graphical applications, and the construction of Web sites and virtual environments.

### Plan Structure

#### Minor

A minor sequence in Information Systems comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZITE1301	Introduction to Information Systems	6	
ZITE1302	Information Systems in Organisations		6

#### and 2 specified Level II courses in Information Systems:

ZITE2301	Design of Information Systems	6	
ZITE2302	Operation of Information Systems		6

Full details of Information Systems courses available in 2005 may be found in the Course Catalogue on page 131.

#### Major

A major sequence in Information Systems comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZITE1301	Introduction to Information Systems	6	
ZITE1302	Information Systems in Organisations		6

#### and 2 specified Level II courses in Information Systems:

ZITE2301	Design of Information Systems	6	
ZITE2302	Operation of Information Systems		6

#### plus 4 specified Level III courses:

ZITE3301	Applications of Information Systems		6
ZITE3302	Management of Work Systems	6	
ZITE3303	Selection of Systems	6	
ZITE3304	Computing Project – Information Systems		6

Full details of Information Systems courses available in 2006 may be found in the Course Catalogue on page 131.

### Plan Honours

Students wishing to take an Honours program in Information Systems need to take the full Information Systems major sequence as listed above. In their fourth year of study they undertake the following courses.

		UOC	
		S1	S2
<b>Full Time</b>			
ZITE4303	Information Systems 4 (Honours)	24	24
<b>Part Time</b>			
ZITE4304	Information Systems 4 (Honours)	12	12

It is also possible to do a combined Honours program in Information Systems and another discipline. Students wishing to take such a combined Honours program need to take the full Information Systems major sequence as listed above. In their fourth year of study they undertake the following courses.

		UOC S1	S2
<b>Full Time</b>			
ZITE4301	Information Systems 4 (Combined Honours)	24	24
<b>Part Time</b>			
ZITE4302	Information Systems 4 (Combined Honours)	12	12

Students interested in taking an Honours program are advised to contact the School Office early in the year prior to the proposed Honours year.

## Operations Research and Statistics

### Plan Overview

<b>Plan Code/s</b>	<b>AINTK14400 (Major)</b> <b>AINTK24400 (Minor)</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Undergraduate Co-ordinator</b>

### Plan Description

Applying mathematical models to the solution of problems encountered by individuals, groups and organisations became a science during World War II and is now known as Operations Research or Management Science. The techniques developed were, after the war, modified and extended to be applicable in the civilian world, in areas such as banking, mining, the oil industry, transportation and many others. Today, the study of Operations Research and Management Science provides insight into decision making.

Study in Operations Research and Statistics (taught jointly with the School of Physical, Environmental and Mathematical Sciences) is only available as a minor.

## Plan Structure

### Minor

A minor sequence in Operations Research and Statistics comprises:

		UOC S1	S2
<b>Two Level I courses</b>			
<b>Either</b>			
ZITE1101	Introduction to Computer Science	6	
ZITE1102	Programming Fundamentals		6
<b>or</b>			
ZITE1301	Introduction to Information Systems	6	
ZITE1302	Information Systems in Organisations		6
<b>Students are also encouraged to take the following courses as electives in their degree:</b>			
ZPEM1301	Mathematics 1A	6	
ZPEM1302	Mathematics 1B		6

**plus 12 units of credit from the following elective courses:**

### Level II Information Technology courses:

ZITE2401	Computer Tools for Decision Making		3
ZITE2402	Decision Analysis	3	

### Level II Statistics courses:

ZPEM2302	Data Analysis	3	
ZPEM2306	Regression Modelling		3

Full details of Operations Research and Statistics courses available in 2005 may be found in the Course Catalogue on page 131.

### Plan Honours

Honours is not currently available in Operations Research and Statistics.

## Mathematics and Statistics

### Plan Overview

<b>Plan Code/s</b>	<b>AMATA14400 (Major)</b> <b>AMATA24400 (Minor)</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Physical, Environmental and Mathematical Sciences</b>
<b>Contact</b>	<b>Undergraduate Co-ordinator</b>

### Plan Description

Mathematics teaches us how to define a problem with precision, how to break it up into a series of clearly defined steps and analyse it logically and how to assess the answer and its implications.

The skills developed when problems are defined and analysed in mathematics are universal and of value to anyone who has to face complex problems and make decisions.

Science and Technology are based on mathematical thinking and use the language of mathematics. The humanities as well as the natural sciences draw on the power of mathematics, particularly probability and statistics, to predict, plan and understand natural and human affairs. As society becomes increasingly dependent on technology, mathematics is becoming more of an essential tool in our lives.

### Plan Structure

The **Level I** courses build on high-school mathematics to give a broad introduction to the basic language and techniques of mathematics. Students who wish to major in other areas of Science are encouraged to take at least the Level I Mathematics courses. ZPEM1301 *Mathematics 1A* and ZPEM1302 *Mathematics 1B* are pre-requisites for the Level II Mathematics courses.

At **Level II** students have a choice of courses to take. ZPEM2301 *Linear Systems* builds on the basic concepts of linear algebra introduced in ZPEM1301 *Mathematics 1A* and looks at a variety of applications. ZPEM2304 *Discrete Dynamics* is the study of quantities that change at discrete points in time such as the size or genetic make-up of populations, while ZPEM2303 *Modelling Continuous Systems* shows how differential equations are used to describe aspects of the natural and artificial world. The ZPEM2305 *Networks and Patterns* course provides an introduction to the mathematics of graphs and networks, looking at some of the key problems and applications. ZPEM2302 *Data Analysis* looks at the presentation of data, and the design and analysis of simple experiments and surveys, while ZPEM2306 *Regression Modelling* studies relationships between variables, such as drug supplementation and athletic performance, for example.

**Level III** courses go into a variety of applications of mathematics and statistics and also delve into mathematical techniques in greater depth. Students wishing to obtain a major in Mathematics must complete at least 24 units of credit at Level III (although, with the approval of the Head of School, Level II courses which have not previously been taken may be substituted for up to two Level III courses). The courses planned for 2006 are listed in Undergraduate Degree Rules, Schedule S on page 83 and details are given in the Course Catalogue on page 136. Final selection will depend on student demand and preferences. In all cases, the choice of courses is subject to the approval of the Head of School.

### Minor

A minor sequence in Mathematics and Statistics comprises:

	UOC	
	S1	S2
<b>Two Level I courses</b>		
ZPEM1301 <i>Mathematics 1A</i>	6	
ZPEM1302 <i>Mathematics 1B</i>		6

**plus 12 units of credit in Level II courses.**

Full details of Mathematics and Statistics courses available in 2006 may be found in the Course Catalogue on page 145.

### Major

A major sequence in Mathematics and Statistics comprises:

	UOC	
	S1	S2
<b>Two Level I courses</b>		
ZPEM1301 <i>Mathematics 1A</i>	6	
ZPEM1302 <i>Mathematics 1B</i>		6

**plus 12 units of credit in Level II courses and 24 units of credit in Level III courses.**

NOTE: Students planning to major in Mathematics are expected to take the three courses ZPEM2301 *Linear Systems*, ZPEM2303 *Modelling Continuous Systems* and ZPEM3311 *Mathematical Methods for Differential Equations*.

Full details of Mathematics and Statistics courses available in 2006 may be found in the Course Catalogue on page 145.

### Plan Honours

A fourth, Honours, year is offered to students with talent and enthusiasm for mathematics. In an honours year, students use the mathematics they have learnt to pursue a research project, as well as undertaking further coursework.

## Oceanography

### Plan Overview

<b>Plan Code/s</b>	<b>AGOCB14400 (Major)</b> <b>AGOCB24400 (Minor)</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Physical, Environmental and Mathematical Sciences</b>
<b>Contact</b>	<b>Undergraduate Co-ordinator</b>

### Plan Description

The study of Oceanography begins with Level I Marine Science and continues in second and third year with Level II and III Oceanography to develop a major or a minor. Level I Marine Science provides students with a broad introduction to the study of the oceans, including topics in ocean and atmosphere circulation, marine physics, chemistry, biology, ecology and geology. Level II and III Oceanography use physical and applied mathematical arguments to develop an understanding of physical phenomena that take place within the world's oceans. The emphasis in Level II and III Oceanography is placed on physical oceanography, including components covering marine acoustics and optics and marine chemistry.

NOTE: For students wishing to study Level II Oceanography, ZPEM1301 *Mathematics 1A* and ZPEM1302 *Mathematics 1B* are pre-requisites, as the courses require a basic understanding of algebraic manipulations and calculus.



## Plan Structure

### Minor

A minor sequence in Oceanography comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZPEM1401	<i>Marine Science 1A (includes field school)</i>	6	
ZPEM1402	<i>Marine Science 1B</i>		6

### Four Level II courses

ZPEM2401	<i>Ocean Dynamics 2A</i>	3	
ZPEM2402	<i>Ocean Dynamics 2B</i>		3
ZPEM2507	<i>Sonar and Underwater Optics</i>	3	
ZPEM2111	<i>Marine Chemistry 2</i>		3

Full details of Oceanography courses available in 2006 may be found in the Course Catalogue on page 145.

### Major

A major sequence in Oceanography comprises:

		UOC	
		S1	S2
<b>Two Level I courses</b>			
ZPEM1401	<i>Marine Science 1A (includes field school)</i>	6	
ZPEM1402	<i>Marine Science 1B</i>		6

### Four Level II courses

ZPEM2401	<i>Ocean Dynamics 2A</i>	3	
ZPEM2402	<i>Ocean Dynamics 2B</i>		3
ZPEM2507	<i>Sonar and Underwater Optics</i>	3	
ZPEM2111	<i>Marine Chemistry 2</i>		3

**plus 24 units of credit in Level III Oceanography courses.**

Full details of Oceanography courses available in 2006 may be found in the Course Catalogue on page 145.

## Plan Honours

Oceanography Honours is designed for students showing a special interest and aptitude for work in the discipline and who satisfy the requirements for entry into the degree of Bachelor of Science with Honours. The Honours program provides students with the opportunity to undertake a research project and to present their results in a thesis. Coursework in the form of seminars, lectures and assignments is also normally undertaken.

## Physics

### Plan Overview

<b>Plan Code/s</b>	<b>APHY14400 (Major) APHY24400 (Minor)</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Physical, Environmental and Mathematical Sciences</b>
<b>Contact</b>	<b>Undergraduate Co-ordinator</b>

### Plan Description

Physics is the systematic study of the basic properties of matter. Its scope ranges from elementary particles at one end of the size scale to galaxies, quasars and the universe itself at the other. It also encompasses some of the deepest scientific questions of the day and sustains a wealth of practical applications. The three-year major program covers key principles of physics and includes a comprehensive account of the physics of astronomy, meteorology and materials. It provides future ADF officers with the technical versatility and understanding necessary for them to employ and exploit the advanced technology at the core of modern defence systems and operations.

The Pass Program is constructed around four broad themes that between them span the field of physics:

- Space, Stars and the Universe
- Earth, Atmosphere and Oceans
- Remote Sensing and Surveillance
- Atoms, Matter and Modern Materials.

Threading through the Program, these themes provide a framework within which the student is introduced to the concepts of physics. In addition, they furnish practical examples and applications which reinforce and enhance understanding and display the value, utility and pervasive character of the principles of physics.

The lectures are supplemented by laboratory exercises. The experiments provide tangible examples of physical phenomena and illustrate fundamental physical principles. They also promote proficiency in measurement techniques, use of instrumentation and the analysis of results. Many of the experiments incorporate computers and are designed to develop skills in computer-based processing of scientific information and to foster familiarity with the use of computers for data acquisition and experimental control.

### Plan Structure

Level I Physics is structured primarily to lead into Level II Physics. However ZPEM1501 *Physics 1A* and ZPEM1502 *Physics 1B* are self-contained courses suitable for those Science and Arts candidates majoring in other fields of study. In addition, some of the Level II and Level III courses may be taken by students majoring in other fields of study provided that the School is satisfied that their background knowledge is appropriate. The Honours program at Level IV is for those students performing well at Level III, and is based on course work and a parallel research project spread over both Sessions. Combined Honours programs extending across two discipline areas are also possible, with proposals considered on a case-by-case basis.

Physics offers two electives for the General Education Program: ZGEN2401 *Astronomy*, and ZGEN2402 *Introductory Meteorology*. These courses are available to humanities and engineering students.

Descriptions of all Physics courses, including those provided for the Engineering and Technology degrees, can be found in the Physics and General Education sections of the Course Catalogue on pages 145 and 114.

### Minor

A minor sequence in Physics comprises:

		UOC S1	S2
<b>Two Level I courses</b>			
ZPEM1501	<i>Physics 1A</i>	6	
ZPEM1502	<i>Physics 1B</i>		6
<b>plus 12 units of credit of Level II Physics courses as outlined below:</b>			
ZPEM2501	<i>Electronic Properties of Materials</i>		3
ZPEM2502	<i>Waves and Remote Sensing</i>	3	
ZPEM2503	<i>Astronomy and Astrophysics</i>	3	
ZPEM2506	<i>Meteorology and Atmospheric Physics</i>		3

### Major

A major sequence in Physics comprises:

		UOC S1	S2
<b>Two Level I courses</b>			
ZPEM1501	<i>Physics 1A</i>		6
ZPEM1502	<i>Physics 1B</i>		6
<b>plus 12 units of credit of Level II Physics courses as outlined below:</b>			
ZPEM2501	<i>Electronic Properties of Materials</i>		3
ZPEM2502	<i>Waves and Remote Sensing</i>	3	
ZPEM2503	<i>Astronomy and Astrophysics</i>	3	
ZPEM2506	<i>Meteorology and Atmospheric Physics</i>		3
<b>plus 24 units of credit of Level III Physics courses as outlined below:</b>			
ZPEM3501	<i>Atmospheric Dynamics</i>		3
ZPEM3502	<i>Cosmology and Relativistic Astrophysics</i>	3	
ZPEM3503	<i>Electromagnetic Remote Sensing</i>		3
ZPEM3504	<i>Physics of Advanced Materials</i>	3	
ZPEM3521	<i>Experimental Physics – Laboratory</i>	3	
ZPEM3522	<i>Experimental Physics - Project</i>		3
ZPEM3524	<i>Navigation and Guidance Physics</i>		3
ZPEM3528	<i>Thermodynamics and Propulsion</i>	3	

### Plan Honours

Students with a special interest and aptitude in Physics are encouraged to apply for the Honours program.

The standard for entry is a credit average or better.

ZPEM4501	<i>Physics 4 (Honours) F/T</i>
ZPEM4502	<i>Physics 4 (Honours) P/T</i>
ZPEM4503	<i>Physics 4 (Combined Honours) F/T</i>
ZPEM4504	<i>Physics 4 (Combined Honours) P/T</i>

Students may elect to undertake their Honours program entirely within Physics or as part of a combined program with another discipline. In the program undertaken entirely within Physics, candidates are required to undertake both coursework and a research project. The research project typically occupies about half of the available time during the Honours year; both oral reports and a thesis are required. The coursework component typically consists of four courses drawn from the following topics:

- Astrophysics
- Experimental Magnetism
- Meteorological Remote Sensing
- Microcomputer Applications in Advanced Materials, Astronomy and/or Meteorology
- Small Scale Atmospheric Motions
- Solid State Physics
- Chaos and Statistical Mechanics
- Stellar Physics

In the Combined Honours programs, students are required to undertake a research project on a topic which incorporates both Physics and the other discipline. The project is jointly supervised and examined. In addition, students are required to complete coursework, typically comprising two of the above courses and the equivalent from the other discipline.

# PROGRAM INFORMATION

## Bachelor of Business – 4405

### Program Summary:

<b>Faculty:</b>	UNSW@ADFA
<b>School:</b>	School of Business
<b>Campus:</b>	ADFA
<b>Award/s:</b>	Bachelor of Business and Bachelor of Business (Honours) (BBus and BBus (Hons))
<b>Career:</b>	Undergraduate
<b>Duration:</b>	3 years full-time or part-time equivalent
<b>UOC per session:</b>	24UOC (full-time)
<b>UOC for award:</b>	144UOC

### Program Description:

The degree has been introduced to enhance business acumen among future leaders and managers in the Australian Defence Organisation and to provide them with the capacity to interact effectively with external business providers. It aims to lay solid foundations in communication, numeracy and general problem solving capabilities developed within a specifically business-oriented context of study and to build students' knowledge in a diverse range of areas associated with organisational management and leadership.

### Program Objectives and Learning Outcomes:

Students taking this degree will become familiar with bodies of knowledge and develop graduate attributes which will give them a strengthened capacity to manage Defence business throughout their Service careers.

The degree structure reflects the diversity of knowledge and skills which contribute to the study and analysis of business issues, a focus on what are regarded as core business capabilities, the recognition that a business education requires integration among its parts and an acknowledgement that business managers and leaders benefit from exposure to thinking outside purely business-related areas.

### Program Structure:

The degree balances business-related courses to other broader study in a ratio of 2:1. Within the business-related component of the degree, all students are required to complete a core of ten (6UOC) courses, four in first year and six at the upper-level (Years 2 and 3). A spine of three, session-length integrating courses runs through the core, providing students with problem-solving, analytical and general management skills embedded in a business context.

In addition to core courses, students take six (6UOC) business-related electives, some of which are offered by Schools other than the School of Business. In some discipline areas (Economics and Information Systems are possible examples) students may be able to take as many courses within the BBus as they could if undertaking a major in the BA or BSc, thus enabling them to achieve a particular "flavour" within the degree.

The first year of the BBus comprises the "foundation core": four session-length courses (Introduction to Accounting and Finance, Introduction to Economics, Organisational Behaviour and Integrating Core 1). Students must complete all four pre-requisite courses before proceeding to upper-level study (including Production, Prices and Trade) in the BBus.

All courses offered in the BBus have a standard value of 6UOC, except for General Education courses which have a value of 3UOC each.

### (a) Core business-related courses, 60UOC: all mandatory for BBus students

		UOC S1	S2
<b>Level 1 courses</b>			
ZBUS1101	Organisational Behaviour		6
ZBUS1102	Introduction to Economics		6
ZBUS1103	Introduction to Accounting and Finance	6	
ZBUS1104	Integrating Core 1	6	
<b>Upper-level courses</b>			
ZBUS2101	Business Law	6	
ZBUS2103	Human Resource Management		6
ZBUS2102	Project Management	6	
ZBUS2104	Integrating Core 2	6	
ZBUS3104	Integrating Core 3		6
ZITE2001	Managing Information Systems		6

### (b) Business-related electives, 36UOC: students may choose any six from the following upper-level courses

		UOC S1	S2
<b>Upper-level courses</b>			
ZBUS2303	Logistics Management		6
ZBUS2302	Leadership	6	
ZBUS2401	Finance		6
ZBUS2301	Management Accounting		6
ZITE3303	Selection of Systems	6	
ZBUS2200	Production, Prices and Trade	6	

(Pre-requisite for all the following upper-level Economics courses in the BBus)

ZBUS2202	Growth and Fluctuations in Open Economies	6	
ZBUS2203	The Making of Economic Policy		6
ZBUS2204	Asia-Pacific Economic Development	6	
ZBUS2205	Applied Economics	6	

**(c) Other courses at Level 1, 24UOC****(d) General Education courses, 12UOC****(e) Directed Studies: Strategic Studies, 6UOC****(f) Non-business upper-level elective: 6UOC**

Note: students may, if sufficient appropriate courses are offered, choose Upper-Level electives to a value of up to 36UOC in a single discipline area such as economics or information systems, if Level 1 pre-requisites have been met.

Full details of Business courses available in 2006 may be found in the Course Catalogue on page 109.

**Academic Rules:****Pass Degree****1.0 General Award Rules**

- 1.1 A student must comply with the Undergraduate General Award Rules. In the event of a conflict, the rules for the Bachelor of Business take precedence over the Undergraduate General Award Rules.

**2.0 Degree Rules Dictionary**

- 2.1 "Level I" means courses at an introductory level, normally taken in Year 1.
- 2.2 "Upper Level" means courses at Level II and Level III, normally taken in Years 2 or 3.
- 2.3 "Business Core" means compulsory courses in the Bachelor of Business as listed in Schedule B on page 89.
- 2.4 "Business Electives" means elective courses in the Bachelor of Business as listed in Schedule B on page 89.

**3.0 Degree Requirements**

- 3.1 To qualify for the degree of Bachelor of Business, a candidate shall normally be enrolled for a minimum of six sessions and gain a minimum of 144 units of credit (normally 24 units in each full-time session), including:
- (a) Level I courses totalling 48 units of credit, with 24 units chosen from Business Core courses;
  - (b) Upper-Level Business Core courses totalling 36 units of credit;
  - (c) Business Electives totalling 36 units of credit;
  - (d) 12 units of credit of specified General Education courses;
  - (e) 6 units of credit for the Directed Studies course ZHSS2002 *An Introduction to Strategic Studies*;
  - (f) 6 units of credit taken from an Upper-Level course offered by a School other than the School of Business and which is not offered as a Business Elective.
- 3.2 No more than 12 units of credit may be gained from General Education courses, with none to be taken solely within the School of Business and a maximum of 6 units of credit to be taken in any one discipline area.

- 3.3 No more than 48 units of credit may be gained for Level I courses.

- 3.4 At least 84 units of credit must be taken from Upper-Level courses.

**Plan Honours****Rules governing the award of the degree of Bachelor of Business with Honours****4.0 Entry**

- 4.1 To enrol for the award of the degree at Honours level, a student must –
- a) complete the pass-degree program requirements;
  - or -
  - b) gain an approved award from elsewhere;
  - and -
- 4.2 a) have achieved at least a credit average (65) across the entire undergraduate program including a credit average over the Upper-Level courses.

**5.0 Degree Requirements**

- 5.1 In addition to the degree requirements for the Bachelor of Business Pass Degree, students seeking to satisfy the requirements of the Bachelor of Business with Honours must obtain, normally over one year of study, a minimum of 48 units of credit in the School of Business and follow a program of study prescribed by the Head of School.

**6.0 Class of Honours**

- 6.1 The Honours degree is awarded in three classes (Class 1, Class 2 in two Divisions, and Class 3).

**Sample Program:**

Year One	Year Two	Year Three
4 x 6UOC core Business courses	3 x 6UOC core Business courses	3 x 6UOC core Business courses
4 x 6UOC non-Business electives	3 x 6UOC Business-related electives	3 x 6UOC Business related electives
	2 x 3UOC General Education courses	2 x 3UOC General Education courses
	1 x 6UOC Strategic Studies course	1 x non-Business elective course

# PROGRAM INFORMATION

## Bachelor of Engineering in Aeronautical Engineering – 4424

### Program Summary:

<b>Faculty:</b>	UNSW@ADFA
<b>School:</b>	School of Aerospace, Civil and Mechanical Engineering
<b>Campus:</b>	ADFA
<b>Award/s:</b>	Bachelor of Engineering (BE) in Aeronautical Engineering (4424)
<b>Career:</b>	Undergraduate
<b>Duration</b>	4 years full-time or part-time equivalent
<b>UOC per session:</b>	24UOC (full-time)
<b>UOC for award:</b>	192UOC

### Program Description:

The aim of the schools offering engineering degrees within The University of New South Wales at the Australian Defence Force Academy is to provide an outstanding engineering education to future leaders in the Australian Defence Force and to pursue excellence through contributions to research, the profession, industry and the community.

The BE program is of four years duration and the degree may be awarded as a pass or an honours degree. The engineering programs at UNSW@ADFA have been granted full accreditation by Engineers Australia.

All Engineering degrees lead to a Bachelor of Engineering degree, with the type of engineering specified.

First-Year engineering students enrol in separate programs in Aeronautical, Civil, Electrical or Mechanical Engineering. There is, however, considerable commonality in the first year within the engineering programs. More than half of the programs are devoted to mathematics, physics and computer science.

### Program Objectives and Learning Outcomes:

Aeronautical engineering is the study of the design, development, manufacture, maintenance and control of machines or vehicles operating in the earth's atmosphere or in outer space.

The design of a flight vehicle is quite complex and demands a knowledge of many engineering disciplines such as aerodynamics, propulsion systems, structural design, materials, avionics, and stability and control systems. Maintaining and operating a flight vehicle requires an understanding of materials, reliability and maintenance, structural analysis for necessary repairs, together with a knowledge of the disciplines within the design process.

The Aeronautical Engineering program has been designed to meet the needs of the Australian Defence Force as Australia's largest aircraft operator and covers

the design, and reliability and maintenance of fixed and rotary wing aircraft. Air Force BE(Aero) graduates may be involved in the operation and maintenance of aircraft and then become responsible for the airworthiness and modification of aircraft and engines, or the acquisition and introduction of new equipment into the Service. Army BE(Aero) graduates are most likely to be involved in the maintenance and repair of the Army's rapidly growing fleet of fixed wing and rotary wing aircraft. Navy BE(Aero) graduates are required for maintenance and repair, modifications, operational deployments and airworthiness of Navy's fleet of rotary wing aircraft.

The BE program in Aeronautical Engineering is firmly based on mathematics and the physical sciences in Year 1 and the engineering sciences in Year 2, leading into an engineering approach to analysis, design and operation in the later years. The major streams of the course are aerodynamics, stability and control, structures, materials, airworthiness, design, and management.

Students are encouraged to develop resourceful and innovative attitudes throughout the course especially in their final year thesis. A number of elective courses are available in the final year. Electives may be selected from courses offered in other schools, subject to the approval of the Heads of Schools concerned.

### Program Structure:

The Bachelor of Engineering degrees require a prescribed program structure as determined by the engineering program chosen. Descriptions of the courses which comprise the degree program are given in the Course Catalogue section of this Handbook. Specialisation in Aeronautical Engineering increases as the degree program progresses. At the final year level, thesis projects and elective courses are offered permitting further specialisation in particular areas.

### Academic Rules:

#### 1.0 General Award Rules

- 1.1 A student must comply with the Undergraduate General Award Rules. In the event of a conflict, the rules for the Bachelor of Engineering take precedence over the Undergraduate General Award Rules.

#### 2.0 Degree Requirements

- 2.1 The degree of Bachelor of Engineering shall be conferred as a pass degree or as an honours degree. Honours may be awarded in the following categories:
  - Honours Class I
  - Honours Class II, Division I
  - Honours Class II, Division II
- 2.2 To qualify for the degree of Bachelor of Engineering, a candidate shall normally be enrolled for a minimum of eight sessions and gain a minimum of 192 units of credit (normally 24 units in each full-time session).
- 2.3 A candidate completing a Standard Program shall complete courses, in the years prescribed, for all engineering students and those pertaining to one particular branch of engineering as set out in the relevant schedule.

2.4 A candidate completing a Non-Standard Program shall, subject to the requirements of Rule 2.5 (below), timetabling requirements and the approval of the appropriate Heads of School, be permitted to enrol in any one year in courses selected from more than one year of the relevant schedule.

2.5 Before a candidate's enrolment will be accepted for any course, the candidate must have completed the relevant pre-requisite courses shown in the Course Catalogue, except where the Course Authority for the appropriate course approves otherwise.

### 3.0 Practical Experience Requirements

3.1 Before graduation a candidate shall complete 60 days of approved practical engineering experience which must be done in blocks of at least 20 working days each, each block being in the service of a single employer.

### Sample Program:

#### First-Year Program

Courses		UOC S1	S2
ZACM1010	Engineering Graphical Communications	3	
ZACM1020	Statics	3	
ZACM1040	Dynamics		3
ZACM1050	Introduction to Aeronautical Engineering & Workshop Practice	3	
ZACM1051	Introduction to Flight		3
ZINT1001	Engineering Computational Methods 1		3
ZITE1001	Computer Tools for Engineers	3	
ZPEM1103	Engineering Chemistry 1A	3	
ZPEM1303	Engineering Mathematics 1A	6	
ZPEM1304	Engineering Mathematics 1B		6
ZPEM1503	Engineering Physics 1A	6	
ZPEM1504	Engineering Physics 1B		6

#### Second-Year Program

Courses		UOC S1	S2
One General Education Course			3
ZACM2010	Design 1	3	
ZACM2020	Materials Science	3	
ZACM2021	Mechanics of Solids A	3	
ZACM2022	Mechanics of Solids B		3
ZACM2030	Thermofluids	6	
ZACM2031	Thermodynamic Cycles		3
ZACM2032	Real and Inviscid Flows	3	
ZACM2040	Aircraft Performance and Stability		3
ZACM2041	Introduction to Vibration		3
ZITE2002	Principles of Electrical & Electronics Technology	3	
ZPEM2309	Engineering Mathematics 2A	6	
ZPEM2310	Engineering Mathematics 2B		6

### Third-Year Program

Courses		UOC S1	S2
Two General Education Courses		6	
ZACM3010	Aircraft Design 2		3
ZACM3011	Component Design	3	
ZACM3020	Engineering Materials	3	
ZACM3021	Structural Mechanics 1	3	
ZACM3030	Gas Turbines	3	
ZACM3031	Subsonic Finite Wing	3	
ZACM3032	Rotary Wing 1		3
ZACM3040	Flight Dynamics & Control		3
ZACM3041	Introduction to Control	3	
ZACM3060	Engineering Management 1		3
ZACM4031	Compressible Flow		3
ZHSS2002	An Introduction to Strategic Studies		6
ZINT3001	Aircraft Systems & Avionics		3

### Final-Year Program

Courses		UOC S1	S2
One General Education Course			3
ZACM4010	Aircraft Design 3	3	
ZACM4011	Aircraft Design 4		3
ZACM4020	Computational Structures	3	
ZACM4021	Structural Mechanics 2		3
ZACM4030	Heat Transfer	3	
ZACM4050	Aeronautical Engineering: Project Thesis & Practical Experience*	6	9
ZACM4051	Maintenance, Management and Repair	3	
ZINT4001	Systems Engineering & Risk Management		3
Electives	(3 at 3 units of credit each)	6	3

\* See Rule 6 of the BE Degree Rules

### Elective Courses

Courses		UOC S1	S2
ZACM4911	Control Theory		3
ZACM4913	Engineering Applications of Computational Fluid Dynamics	3	
ZACM4918	Missile Design		3
ZACM4927	Rotary Wing 2	3	
ZACM4900	Acoustic Noise	3	
ZACM4904	Applied Optics	3	
ZACM4920	Non-Destructive Inspection	3	
ZACM4928	Rotary Wing 3		3
ZACM4921	Occasional Elective 1	3	
ZACM3450	Instrumentation	3	
ZITE4222	Systems Engineering		3
ZPEM4505	Meteorology and Applications	3	

Full details of Aeronautical Engineering courses available in 2006 may be found in the Course Catalogue on page 93.

# PROGRAM INFORMATION

## Bachelor of Engineering in Civil Engineering – 4421

### Program Summary:

**Faculty:** UNSW@ADFA

**School:** School of Aerospace, Civil and Mechanical Engineering

**Campus:** ADFA

**Award/s:** Bachelor of Engineering (BE) in Civil Engineering (4421)

**Career:** Undergraduate

**Duration:** 4 years full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 192UOC

### Program Description:

The aim of the schools offering engineering degrees within The University of New South Wales at the Australian Defence Force Academy is to provide an outstanding engineering education to future leaders in the Australian Defence Force and to pursue excellence through contributions to research, the profession, industry and the community.

The BE program is of four years duration, and the degree may be awarded as a pass or an honours degree. The engineering programs have been granted full accreditation by Engineers Australia.

All Engineering degrees lead to a Bachelor of Engineering degree, with the type of engineering specified. The degree may be awarded at the Pass and Honours level.

First-year engineering students enrol in separate programs in Aeronautical, Civil, Electrical or Mechanical Engineering. There is, however, considerable commonality in the first year within the engineering programs. More than half of the programs are devoted to mathematics, physics and computer science.

### Program Objectives and Learning Outcomes:

Civil Engineering takes its name from the division of engineering in the Middle Ages between military and civilian works. The profession of civil engineering was recognised by the formation of the Institution of Civil Engineers (UK) in 1825. In the 19th Century, the broadening scope of engineering led to the division of civilian engineering into civil, mechanical and electrical, with further specialisations (aeronautical, chemical, industrial, materials, electronic etc) having developed in the 20th Century.

After contracting its sphere of interest over a long period of time, civil engineering is now broadening its scope with the recognition of the wider implications of its effects on modern society. Attention is given both to the interaction between civil engineering and other disciplines and to the effect of civil engineering works on the environment. Present day civil engineering has maintained strong commonality with military engineering - the design and construction of facilities such as roads, bridges, airfields, buildings, water supply and waste treatment facilities, structures of all types, and the associated planning and management of projects.

Students participate in field trips and visits to a number of engineering sites in the region as well as construction and workshop activities. The Engineering Surveying course includes a field experience with various surveying techniques and applications. All students are required to gain experience in a professional engineering organisation before their final year of study.

A Civil Engineer in the ADF may be employed in the Royal Australian Engineers Corps of the Australian Army or as an Airfield Engineering Officer in the RAAF. The degree will provide graduates with professional engineering design, construction and management skills on a broad spectrum of engineering tasks required by the Australian Defence Force. Graduates will also develop enhanced planning and decision making skills and technical expertise to provide guidance to superiors and direction to subordinates, as required of Service officers.

The Bachelor of Engineering degrees require a prescribed program structure as determined by the engineering program chosen. The BE program in Civil Engineering is firmly based on mathematics and the physical sciences in Year 1 and the engineering sciences in Year 2, leading into an engineering approach to analysis and design and engineering management in the later years. The major streams of the course are structural engineering, materials engineering, geotechnical engineering, water engineering, environmental engineering, engineering surveying, the construction of civil engineering works, transport engineering, and the management of engineering projects.

Students are encouraged to develop resourceful and innovative attitudes throughout the course, especially in their final year thesis or integrated design activities. A number of elective courses are available in the final year. Electives may be selected from courses offered in other schools subject to the approval of the Heads of Schools concerned.

The Civil Engineering degree program leads to the Bachelor of Engineering degree, and Pass and Honours classifications are determined at the conclusion of the course.

### Program Structure:

Descriptions of the courses which comprise the degree program are given in the Course Catalogue section of this Handbook. Specialisation in Civil Engineering increases as the degree program progresses.

The Practical Experience component of Thesis/Integrated Design should be completed before the start of Session 1 in the final year.

**Academic Rules:**

The Rules governing the award of the degree of Bachelor of Engineering are identical for the Bachelor of Engineering in Aeronautical Engineering, Civil Engineering, Electrical Engineering and Mechanical Engineering. Please refer to the entry under Bachelor of Engineering in Aeronautical Engineering on page 75.

**Program:****First-Year Program**

Courses	UOC	
	S1	S2
ZACM1010 <i>Engineering Graphical Communications</i>		3
ZACM1020 <i>Statics</i>	3	
ZACM1040 <i>Dynamics</i>		3
ZACM1250 <i>Civil Engineering Practice</i>	3	
ZINT1001 <i>Engineering Computational Methods 1</i>		3
ZITE1001 <i>Computer Tools for Engineers</i>	3	
ZPEM1103 <i>Engineering Chemistry 1A</i>	3	
ZPEM1104 <i>Engineering Chemistry 1B</i>		3
ZPEM1303 <i>Engineering Mathematics 1A</i>	6	
ZPEM1304 <i>Engineering Mathematics 1B</i>		6
ZPEM1503 <i>Engineering Physics 1A</i>	6	
ZPEM1504 <i>Engineering Physics 1B</i>		6

**Second-Year Program**

Courses	UOC	
	S1	S2
Two General Education Courses	3	3
ZACM2020 <i>Materials Science</i>	3	
ZACM2021 <i>Mechanics of Solids A</i>	3	
ZACM2022 <i>Mechanics of Solids B</i>		3
ZACM2030 <i>Thermofluids</i>	6	
ZACM2211 <i>Engineering Surveying</i>	3	
ZACM2221 <i>Geotechnical Engineering and Engineering Construction</i>		6
ZACM2230 <i>Fluid Engineering</i>		3
ZACM2250 <i>Environmental Engineering Fundamentals</i>		3
ZPEM2309 <i>Engineering Mathematics 2A</i>	6	
ZPEM2310 <i>Engineering Mathematics 2B</i>		6

**Third-Year Program**

Courses	UOC	
	S1	S2
Two General Education Courses	6	
ZACM3060 <i>Engineering Management 1</i>		3
ZACM3210 <i>Structural Design 1A</i>		3
ZACM3211 <i>Structural Design 1B</i>	3	
ZACM3212 <i>Environmental Engineering Applications</i>		3
ZACM3213 <i>Geometric Design of Transport Systems</i>	3	
ZACM3220 <i>Civil Engineering Materials A</i>		3
ZACM3221 <i>Civil Engineering Materials B</i>	3	
ZACM3222 <i>Geotechnical Engineering 2A</i>	3	
ZACM3223 <i>Geotechnical Engineering 2B</i>		3
ZACM3224 <i>Structural Analysis 1A</i>	3	
ZACM3225 <i>Structural Analysis 1B</i>		3
ZACM3230 <i>Hydraulics</i>	3	
ZHSS2002 <i>Introduction to Strategic Studies</i>		6

**Final-Year Program**

Courses	UOC	
	S1	S2
ZACM4210 <i>Structural Design 2A</i>	3	
ZACM4211 <i>Structural Design 2B</i>	3	
ZACM4220 <i>Pavement Engineering</i>	3	
ZACM4223 <i>Geotechnical Eng 3</i>	3	
ZACM4224 <i>Structural Analysis 2</i>	3	
ZACM4231 <i>Water Resources</i>		3
ZACM4250 <i>Environ Engineering Practice</i>		3
ZACM4252 <i>Thesis and Seminar &amp; Practical Experience*</i>	3	9
ZACM4253 <i>Integrated Design &amp; Practical Experience*</i>	3	9
ZACM4260 <i>Eng Management 2A</i>		3
ZACM4261 <i>Eng Management 2B</i>	3	
Electives (3 at 3 units of credit each)	3	6

\* See Rule 3 of the BE Degree Rules.

**Elective Courses**

Courses	UOC	
	S1	S2
ZACM4905 <i>Blast Design</i>	3	
ZACM4913 <i>Engineering Applications of Computational Fluid Dynamics</i>	3	
ZACM4900 <i>Acoustic Noise</i>	3	
ZACM4915 <i>Geosynthetics</i>		3
ZACM4920 <i>Non-Destructive Inspection</i>	3	
ZACM4921 <i>Occasional Elective</i>	3	
ZITE4207 <i>Digital Image Processing &amp; Remote Sensing</i>		3
ZITE4222 <i>Systems Engineering</i>		3
ZPEM4505 <i>Meteorology and Applications</i>	3	

Full details of Civil Engineering courses available in 2006 may be found in the Course Catalogue on page 93.



## PROGRAM INFORMATION

### Bachelor of Engineering in Electrical Engineering – 4422

#### Program Summary:

**Faculty:** UNSW@ADFA

**School:** School of Information Technology and Electrical Engineering

**Campus:** ADFA

**Award/s:** Bachelor of Engineering (BE) in Electrical Engineering (4422)

**Career:** Undergraduate

**Duration:** 4 years full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 192UOC

#### Program Description:

The aim of the schools offering engineering degrees within The University of New South Wales at the Australian Defence Force Academy is to provide an outstanding engineering education to future leaders in the Australian Defence Force and to pursue excellence through contributions to research, the profession, industry and the community.

The BE program is of four years duration, and the degree may be awarded as a pass or an honours degree. The engineering programs have been granted full accreditation by the Engineers Australia and in addition the Electrical Engineering program has been recognised by the Institute of Electrical and Electronics Engineers.

All Engineering degrees lead to a Bachelor of Engineering degree, with the type of engineering specified.

First-Year engineering students enrol in separate programs in Aeronautical, Civil, Electrical or Mechanical Engineering. There is, however, considerable commonality in the first year within the engineering programs. More than half of the programs are devoted to mathematics, physics and computer science.

#### Program Objectives and Learning Outcomes:

The BE course in Electrical Engineering is built on a foundation of mathematics, computing science and physical science. A small component of electrical engineering is introduced in the first year, with progressively larger components in second and third year. The final year is devoted exclusively to electrical engineering courses. Each year of the program comprises a number of discipline-based courses and courses taught by other discipline areas. Apart from the general education courses the first three years of the program are common for all electrical engineering students. In the final year students have the option to specialise in areas such as communications, surveillance and radar, computer engineering and guided weapons electronics.

The Electrical Engineer in the Navy is known as a WEO – a Weapons Electrical Officer, and is responsible for electronic systems associated with gun and missile control systems, navigation systems, air and ground communications, radar and sonar systems and data systems. WEOs are not only responsible for technical matters but are a vital link in management: they may become involved also in personnel, financial and resource management.

RAAF Electrical Engineers usually are employed to manage a wide variety of operations including the repair and maintenance of modern radar, navigation, communications and computing equipment. They may be posted to a squadron in charge of an avionics section, or to a development area working on technical problems associated with new equipment. As they gain experience they can be expected to be posted to one of the commands, usually as a project officer concerned with the management and funding of projects.

Army Electrical Engineers usually pursue a career either in the Royal Australian Corps of Signals or the Royal Australian Corps of Electrical and Mechanical Engineers. New graduates may be involved in such areas as the operation, management and repair of state-of-the-art communications equipment or the management of guided weapons systems, laser designation and range finding equipment and radar.

Electrical Engineering is one of the newer branches of engineering. It has its origin in the turning to practical use of the discoveries of Faraday, Ampere, Maxwell and a number of other eminent 19th century physicists. It has remained the most strongly science-oriented branch of engineering.

At first it had its major impact by providing the means for the generation, distribution and utilisation of electric power. However, while this remains an important sub-area of the whole discipline, the last few decades particularly have seen a rapid and extensive diversification into the fields of computers and control as well as electronics and communications, and beyond them into such areas as biology, medicine and space technology. It is now true to say that there are very few areas of civilised activity that have remained untouched by the ideas and products of modern electrical engineering. The absorption of recent scientific development has been very rapid and has demanded a fully developed scientific outlook on the part of electrical engineers for a proper understanding of the problems involved. Many devices, scarcely more than laboratory prototypes a decade ago, are now in widespread use as fully engineered hardware.

#### Program Structure:

The Bachelor of Engineering degrees require a prescribed program structure as determined by the engineering program chosen. Each year of the program comprises a number of School-based courses (identified by the prefix ZITE) and courses taught by other Schools within UNSW@ADFA. Completion of each year, thereby allowing progression to the next year, is normally achieved by satisfactory progress in each of the courses given in that year. At the discretion of the Head of School, students may be allowed to concurrently enrol in courses from more than one year of the program.

**Academic Rules:**

The Rules governing the award of the degree of Bachelor of Engineering are identical for the Bachelor of Engineering in Aeronautical Engineering, Civil Engineering, Electrical Engineering and Mechanical Engineering. Please refer to the entry under Bachelor of Engineering in Aeronautical Engineering on page 75.

**Program:****First-Year Program**

Courses		UOC S1	S2
ZITE1001	Computer Tools for Engineers	3	
ZITE1201	Circuits and Systems 1	3	
ZITE1202	Digital Systems 1	3	
ZITE1203	Digital Systems 2		3
ZITE1204	Electronics 1		3
ZITE1205	Programming Fundamentals for Engineers		3
ZINT1001	Engineering Computational Methods 1		3
ZPEM1106	Introduction to Engineering Materials for Electrical Engineers	3	
ZPEM1303	Engineering Mathematics 1A	6	
ZPEM1304	Engineering Mathematics 1B		6
ZPEM1505	Electrical Engineering Physics 1A	6	
ZPEM1506	Electrical Engineering Physics 1B		6

**Second-Year Program**

Courses		UOC S1	S2
ZHSS2002	An Introduction to Strategic Studies		6
ZITE2201	Advanced Programming for Engineers	6	
ZITE2202	Circuits and Systems 2	3	
ZITE2203	Digital Systems 3		3
ZITE2204	Electronics 2	3	
ZITE2205	Electronics Design Laboratory 1	3	
ZITE2206	Signals and Systems		3
ZPEM2309	Engineering Mathematics 2A	6	
ZPEM2310	Engineering Mathematics 2B		6
ZPEM2510	Electrical Engineering Physics 2	3	
Two General Education courses		3	3

**Third-Year Program**

Courses		UOC S1	S2
ZACM3060	Engineering Management 1		3
ZITE3201	Analogue Communications	3	
ZITE3202	Control Theory 1	3	
ZITE3203	Control Theory 2		3
ZITE3204	Digital Communications		3
ZITE3205	Electrical Power and Machines	3	
ZITE3206	Electronics 3	3	
ZITE3207	Electronics Design Laboratory 2		3
ZITE3208	Engineering Electromagnetics 1	3	
ZITE3209	Engineering Electromagnetics 2		3
ZITE3210	Management Science E	3	
ZITE3211	Microcomputer Interfacing	3	
ZITE3212	Optoelectronic Techniques		3
ZITE3214	Power Electronics and Electrical Drives	3	3
General Education courses		3	3

**Final-Year Program**

Courses		UOC S1	S2
ZITE4222	Systems Engineering		3
ZITE4299	Electrical Engineering: Project, Thesis Laboratory Work, Practical Experience and Specialist Lectures	12	
ZITE4299	Electrical Engineering: Project, Thesis Laboratory Work, Practical Experience and Specialist Lectures		12

Students taking the final year Electrical Engineering program will select a further seven courses from the following list, subject to the approval of the Head of the School, to make a balanced program. Students will not normally be allowed to take courses from other Schools as part of their final year program.

Courses		UOC S1	S2
ZITE4201	Advanced Communication Techniques		3
ZITE4202	Antennas and Propagation		3
ZITE4203	Avionics and Navigational Aids	3	
ZITE4204	Communications Networks		3
ZITE4205	Communications Systems	3	
ZITE4207	Digital Image Processing & Remote Sensing		3
ZITE4208	Digital Signal Processing	3	
ZITE4210	Guided Weapons Electronics		3
ZITE4211	Image and Video Transmission Systems	3	
ZITE4212	Introduction to Radar & Radar Imaging	3	
ZITE4213	Lasers and Laser Applications		3
ZITE4215	Occasional Option 1 (Underwater Communications)		3
ZITE4216	Occasional Option 2	3	
ZITE4217	Occasional Option 3	3	
ZITE4218	Occasional Option 4		3
ZITE4222	Systems Engineering		3

The following courses, though not on offer in 2006, may be available in future years.

Courses		UOC
ZITE3107	Multimedia & Virtual Environments	Not available in 2006
ZITE4206	Computer Control Theory	Not available in 2006
ZITE4209	Electronics 4	Not available in 2006
ZITE4214	Modelling and Simulation	Not available in 2006
ZITE4219	Power Systems	Not available in 2006
ZITE4220	Robotics & Mechanical Systems	Not available in 2006
ZITE4221	Software Engineering: Principles and Practice	Not available in 2006

Students may also take up to one of the following courses:

Courses		UOC	
		S1	S2
ZITE3102	<i>Cryptography</i>		3
ZITE3105	<i>Human Computer Interaction</i>	3	
ZITE3106	<i>Interactive Computer Graphics</i>		3
ZITE3108	<i>Java Programming Applications</i>		3

Full details of Electrical Engineering courses available in 2006 may be found in the Course Catalogue on page 131.

## PROGRAM INFORMATION

### Bachelor of Engineering in Mechanical Engineering – 4423

#### Program Summary:

**Faculty:** UNSW@ADFA

**School:** School of Aerospace, Civil and Mechanical Engineering

**Campus:** ADFA

**Award/s:** Bachelor of Engineering (BE) in Mechanical Engineering (4423)

**Career:** Undergraduate

**Duration:** 4 years full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 192UOC

#### Program Description:

The aim of the schools offering engineering degrees within The University of New South Wales at the Australian Defence Force Academy is to provide an outstanding engineering education to future leaders in the Australian Defence Force and to pursue excellence through contributions to research, the profession, industry and the community.

The BE program is of four years duration, and the degree may be awarded as a pass or an honours degree. The engineering programs have been granted full accreditation by Engineers Australia.

All Engineering degrees lead to a Bachelor of Engineering degree, with the type of engineering specified.

First-Year engineering students enrol in separate programs in Aeronautical, Civil, Electrical or Mechanical Engineering. There is, however, considerable commonality in the first year within the engineering programs. More than half of the programs are devoted to mathematics, physics and computer science.

#### Program Objectives and Learning Outcomes:

Mechanical Engineering is the branch of engineering that is concerned with machines and the production of power, and particularly with forces and motion.

It became a separate branch of engineering in the early 1800s, when steam power began to be used in manufacture and transportation.

'One can identify four functions that are common to all branches of mechanical engineering.

The first is the understanding of and dealing with the bases of mechanical science. These include dynamics, concerning the relationship between forces and motion, such as vibration; automatic control: thermodynamics, dealing with the relations among the various forms of heat, energy, and power; fluid flow; heat transfer; lubrication; and properties of materials.

Second is the sequence of research, design, and development. This function attempts to bring about the changes necessary to meet present and future needs. Such work requires not only a clear understanding of mechanical science and an ability to analyse a complex system into its basic factors, but also the originality to synthesise and invent.

Third is production of products and power, which embraces planning, operation and maintenance. The goal is to produce the maximum value with the minimum investment and cost while maintaining or enhancing longer term viability of the enterprise or the institution.

Fourth is the co-ordinating function of the mechanical engineer, including management, consulting and, in some cases marketing.

In all of these functions there is a long continuing trend towards the use of scientific instead of traditional or intuitive methods. Operations research, value engineering and reliability centred maintenance are typical titles of such new rationalised approaches. Creativity, however, cannot be rationalised.

The ability to take the important and unexpected step that opens up new solutions remains in mechanical engineering, as elsewhere, largely a personal and spontaneous characteristic'.

(The above description was adapted from the Encyclopedia Britannica).

Army BE(Mech) graduates can expect to be posted to the Royal Australian Electrical and Mechanical Engineers (RAEME), Armour, or Infantry corps. Typically they will work in workshops, or headquarters or on equipment procurement in the Materiel Branch. Navy BE(Mech) graduates will undertake courses to enhance their professional development as Naval officers and Marine Engineers before taking up postings at sea or ashore.

The BE program in Mechanical Engineering is firmly based on mathematics and the physical sciences in Year 1 and the engineering sciences in Year 2, leading into an engineering approach to analysis, design and operation in the later years. The major streams of the course are dynamics, fluids, structures, materials and design.

Students are encouraged to develop resourceful and innovative attitudes throughout the course especially in their final year thesis. A number of elective courses are available in the final year. Electives may be selected from courses offered in other schools, subject to the approval of the Head of Schools concerned.

**Program Structure:**

The Bachelor of Engineering degrees require a prescribed program structure as determined by the engineering program chosen. Descriptions of the courses which comprise the degree program are in the Course Catalogue section of this Handbook. Specialisation in Mechanical Engineering increases as the degree program progresses. At the final year level, thesis projects and elective courses are offered permitting further specialisation in particular areas.

During the first and second years of the program, students may go on appropriate industrial visits.

**Academic Rules:**

The Rules governing the award of the degree of Bachelor of Engineering are identical for the Bachelor of Engineering in Aeronautical Engineering, Civil Engineering, Electrical Engineering and Mechanical Engineering. Please refer to the entry under Bachelor of Engineering in Aeronautical Engineering on page 75.

**Program:****First-Year Program**

Courses		UOC S1	S2
ZACM1010	Engineering Graphical Communications		3
ZACM1020	Statics	3	
ZACM1040	Dynamics		3
ZACM1450	Introduction to Profession of Mechanical Engineering & Workshop Practice	3	
ZINT1001	Engineering Computational Methods 1		3
ZINT2504	Introduction to Electrical & Mechanical Engineering Plant		3
ZITE1001	Computer Tools for Engineers	3	
ZPEM1103	Engineering Chemistry 1A	3	
ZPEM1303	Engineering Mathematics 1A	6	
ZPEM1304	Engineering Mathematics 1B		6
ZPEM1503	Engineering Physics 1A	6	
ZPEM1504	Engineering Physics 1B		6

**Second-Year Program**

Courses		UOC S1	S2
One General Education Course			3
ZACM2010	Design 1	3	
ZACM2020	Materials Science	3	
ZACM2021	Mechanics of Solids A	3	
ZACM2022	Mechanics of Solids B		3
ZACM2030	Thermofluids	6	
ZACM2031	Thermodynamic Cycles	3	
ZACM2041	Introduction to Vibration		3
ZACM2230	Fluid Engineering		3
ZACM2440	Mechanics of Machines		3
ZITE2002	Principles of Electrical and Electronics Technology		3
ZPEM2309	Engineering Mathematics 2A	6	
ZPEM2310	Engineering Mathematics 2B		6

**Third-Year Program (transitional program for 2006)**

Courses		UOC S1	S2
Three General Education Courses		6	3
ZACM3011	Component Design	3	
ZACM3020	Engineering Materials	3	
ZACM3021	Structural Mechanics 1	3	
ZACM3030	Gas Turbines	3	
ZACM3041	Introduction to Control	3	
ZACM3060	Engineering Management 1		3
ZACM3410	Design 2		3
ZACM3430	Refrigeration		3
ZACM3431	Viscous Flows		3
ZACM3440	Dynamics of Mechanical Systems		3
ZACM3450	Instrumentation	3	
ZHSS2002	An Introduction to Strategic Studies		6

**Final-Year Program**

Courses		UOC S1	S2
ZACM4020	Computational Structures	3	
ZACM4021	Structural Mechanics 2		3
ZACM4030	Heat Transfer	3	
ZACM4051	Maintenance Management & Repair	3	
ZACM4410	Design 3	3	
ZACM4411	Design 4		3
ZACM4430	Turbomachines		3
ZACM4450	Mechanical Engineering: Project Thesis & Practical Experience*	6	9
ZINT4001	Systems Engineering & Risk Management		3
Electives	(3 at 3 units of credit each)	6	3

\* See Rule 3 of the BE Degree Rules.

**Elective Courses**

Courses		UOC S1	S2
ZACM3032	Rotary Wing 1		3
ZACM4911	Control Theory		3
ZACM4913	Engineering Applications of Computational Fluid Dynamics	3	
ZACM4918	Missile Design		3
ZACM4923	Orbital Mechanics	3	
ZACM4927	Rotary Wing 2	3	
ZACM4900	Acoustic Noise	3	
ZACM4920	Non-Destructive Inspection	3	
ZACM4904	Applied Optics	3	
ZACM4921	Occasional Elective	3	
ZACM4928	Rotary Wing 3		3
ZITE4222	Systems Engineering		3
ZPEM4505	Meteorology and Applications	3	

Full details of Mechanical Engineering courses available in 2006 may be found in the Course Catalogue on page 93.

# PROGRAM INFORMATION

## Bachelor of Technology - Aeronautical Engineering – 4430

### Program Summary:

<b>Faculty:</b>	UNSW@ADFA
<b>School:</b>	School of Aerospace, Civil and Mechanical Engineering
<b>Campus:</b>	ADFA
<b>Award/s:</b>	4430 Bachelor of Technology (Aeronautical Engineering) (BTech(Aero))
<b>Career:</b>	Undergraduate
<b>Duration:</b>	3 years full-time or part-time equivalent for BTech programs
<b>UOC per session:</b>	24UOC (full-time)
<b>UOC for award:</b>	144UOC

### Program Description:

This three-year technology program is accredited by Engineers Australia at the Engineering Technologist level.

The BTech (Aero) program is a three-year degree at pass level. There is provision for students who have completed the BTech to upgrade it to a BE degree in Aeronautical Engineering by undertaking 18 months further study at a later stage.

### Program Objectives and Learning Outcomes:

The BTech (Aero) program is organised into streams developed for basic science/engineering principles and moving into specialised applications over three years. These streams include: mathematics and computing tools, physics, materials and structures, dynamics and control, thermofluids, design and management as well as discipline specific streams such as aircraft systems and engines.

The BTech (Aero) program is very similar to the first three years of the BE(Aero) programs. During the first and second years of the program, students may go on appropriate industrial visits. The BTech(Aero) is primarily designed for RAAF officer cadets who intend to become aircrew and wish to enhance their understanding of the operation and performance of aircraft.

### Program Structure:

The Bachelor of Technology degrees require a prescribed program structure as determined by the technology program chosen. Before completing their academic studies students must complete 20 days of approved practical experience, which must be done in one block with one employer. The Head of School may require students to maintain an approved record to be returned to the School to obtain credit for the work experience.

Descriptions of the courses which comprise the degree program are given in the Course Catalogue section of this Handbook. During the first and second years of the program, students may go on appropriate industrial visits.

### Academic Rules:

#### Pass Degree

#### 1.0 General Award Rules

- 1.1 A student must comply with the Undergraduate General Award Rules. In the event of a conflict, the rules for the Bachelor of Technology take precedence over the Undergraduate General Award Rules.

#### 2.0 Degree Requirements

- 2.1 To qualify for the degree of Bachelor of Technology, a candidate shall normally be enrolled for a minimum of six sessions and gain a minimum of 144 units of credit (normally 24 units in each full-time session).
- 2.2 A candidate completing a Standard Program shall complete courses, in the years prescribed, as set out in the relevant schedule.
- 2.3 A candidate completing a Non-Standard Program shall, subject to the requirements of Rule 2.4 (below), timetabling requirements and approval of the appropriate Heads of School, be permitted to enrol in any one year in courses selected from more than one year of the relevant schedule.
- 2.4 Before a candidate's enrolment will be accepted for any course, the candidate must have completed the relevant pre-requisite courses shown in the Course Catalogue, except where the Course Authority for the appropriate course approves otherwise.

#### 3.0 Practical Experience Requirements

- 3.1 Before graduation a candidate shall complete 20 days of approved practical experience which must be done in one block with one employer.

### Program:

#### First-Year Program

	Courses	UOC	
		S1	S2
ZACM1010	Engineering Graphical Communications		3
ZACM1020	Statics	3	
ZACM1040	Dynamics		3
ZACM1050	Introduction to Aeronautical Engineering & Workshop Practice	3	
ZACM1051	Introduction to Flight		3
ZINT1001	Engineering Computational Methods 1		3
ZITE1001	Computer Tools for Engineers	3	
ZPEM1103	Engineering Chemistry 1A	3	
ZPEM1303	Engineering Mathematics 1A	6	
ZPEM1304	Engineering Mathematics 1B		6
ZPEM1503	Engineering Physics 1A	6	
ZPEM1504	Engineering Physics 1B		6

**Second-Year Program**

Courses	UOC	
	S1	S2
One General Education Course		3
ZACM2010 <i>Design 1</i>	3	
ZACM2020 <i>Materials Science</i>	3	
ZACM2021 <i>Mechanics of Solids A</i>	3	
ZACM2022 <i>Mechanics of Solids B</i>		3
ZACM2030 <i>Thermofluids</i>	6	
ZACM2031 <i>Thermodynamic Cycles</i>		3
ZACM2032 <i>Real and Inviscid Flows</i>		3
ZACM2040 <i>Aircraft Performance and Stability</i>		3
ZACM2041 <i>Introduction to Vibration</i>		3
ZITE2002 <i>Principles of Electrical &amp; Electronics Technology</i>	3	
ZPEM2309 <i>Engineering Mathematics 2A</i>	6	
ZPEM2310 <i>Engineering Mathematics 2B</i>		6

**Third-Year Program**

Courses	UOC	
	S1	S2
Three General Education Courses	3	6
ZACM3010 <i>Aircraft Design 2</i>		3
ZACM3011 <i>Component Design</i>	3	
ZACM3020 <i>Engineering Materials</i>	3	
ZACM3021 <i>Structural Mechanics 1</i>	3	
ZACM3030 <i>Gas Turbines</i>	3	
ZACM3031 <i>Subsonic Finite Wing</i>	3	
ZACM3032 <i>Rotary Wing 1</i>		3
ZACM3040 <i>Flight Dynamics &amp; Control</i>		3
ZACM3041 <i>Introduction to Control</i>	3	
ZACM3060 <i>Engineering Management 1</i>		3
ZACM3650 <i>Aero Project &amp; Practical Experience*</i>		3
ZINT3001 <i>Aircraft Systems &amp; Avionics</i>		3
ZPEM3527 <i>Atmospheric Physics &amp; Meteorology</i>	3	

\* See Rule 3 of the BTech Degree Rules

Full details of Technology courses available in 2006 may be found in the Course Catalogue on page 93.

**PROGRAM INFORMATION****Articulation – BTech(Aeronautical) Engineering to BE(Aeronautical Engineering) – 4425****Program Summary:**

**Faculty:** UNSW@ADFA

**School:** School of Aerospace, Civil and Mechanical Engineering

**Campus:** ADFA

**Award/s:** 4425 Articulation Program BTech(Aero) to BE(Aero)

**Career:** Undergraduate

**Duration:** – 18 months full-time or part-time equivalent for BTech programs

**UOC per session:** 27UOC (full-time) and 24 UOC based on a 12 month program

**UOC for award:** 51UOC

**Program Description:**

The Bachelor of Technology (Aeronautical) program and the Bachelor of Engineering program in Aeronautical Engineering have been designed so that a graduate with the Bachelor of Technology program may, under normal circumstances, articulate to the Bachelor of Engineering in Aeronautical Engineering program with 12 - 18 months of additional study.

**Program Objectives and Learning Outcomes:**

The program objectives and learning outcomes for this program are identical to Bachelor of Engineering (Aeronautical Engineering).

**Program Structure:**

The actual program will depend upon when the Bachelor of Technology (Aeronautical) was completed and the current Bachelor of Engineering in Aeronautical Engineering program. Please note that the options previously completed in the Bachelor of Technology program will not be available to the student in the Articulation Program and selection will be subject to the approval of the Head of School. Pre-requisite requirements will apply.

**Academic Rules:**

*The Rules governing the award of the Articulation Program BTech(Aeronautical Engineering) to BE(Aeronautical Engineering) are identical to the rules for the Bachelor of Technology (Aeronautical). Please refer to the rules for the Bachelor of Engineering (Aeronautical) on page 83.*

**Sample Program:**

Courses	UOC	
	S1	S2
ZACM3021 <i>Structural Mechanics 1</i>	3	
ZACM3040 <i>Flight Dynamics &amp; Control</i>		3
ZACM4010 <i>Aircraft Design 3</i>	3	
ZACM4011 <i>Aircraft Design 4</i>		3
ZACM4020 <i>Computational Structures</i>	3	
ZACM4021 <i>Structural Mechanics 2</i>		3
ZACM4030 <i>Heat Transfer</i>	3	
ZACM4031 <i>Compressible Flow</i>		3
ZACM4050 <i>Aeronautical Engineering: Project Thesis &amp; Practical Experience*</i>	6	9
Electives (4 at 3 units of credit each)**	9	3

\* See Rule 3 of the BE Degree Rules

\*\* Students who have already completed ZACM3040 *Flight Dynamics and Control* will need to enrol in another elective in lieu of this course.

## PROGRAM INFORMATION

### Bachelor of Technology (Aviation) – 4437

**Program Summary:**

<b>Faculty:</b>	UNSW@ADFA
<b>School:</b>	School of Aerospace, Civil and Mechanical Engineering
<b>Campus:</b>	ADFA
<b>Award/s:</b>	4437 Bachelor of Technology (Aviation) (BTech(Av))
<b>Career:</b>	Undergraduate
<b>Duration:</b>	3 years full-time or part-time equivalent for BTech programs
<b>UOC per session:</b>	24UOC (full-time)
<b>UOC for award:</b>	144UOC

**Program Description:**

This three-year technology program is accredited by Engineers Australia at the Engineering Technologist level.

The program combines foundation and theory of air technology taught at UNSW@ADFA with the flying training conducted at Defence facilities.

**Program Objectives and Learning Outcomes:**

The specialist components of the BTech(Av) program use a systems approach to provide the student with a deep understanding of the various systems that contribute to the safe operation of aircraft, the interactions of those systems and likely failure modes. Aircraft accidents and/or incidents are considered as failures of the system.

The BTech(Av) program is designed for potential pilots entering the Australian Defence Force. It covers both the technical and organisational aspects, with a concentration on the safety of aviation as a whole and highlights the safe practices of the components that make up aviation e.g. pilot, maintenance, air traffic control, etc.

**Program Structure:**

The Bachelor of Technology degrees require a prescribed program structure as determined by the technology program chosen. The plan comprises a first year at UNSW@ADFA which is similar to the first year of the BE(Aero) degree, a second year at UNSW@ADFA which is designed to provide the student with a range of specialist courses in the field of Aviation and a third year which includes a project and the flying component of the degree presented by the Australian Defence Force at Tamworth (first semester) and Pearce (second semester).

Descriptions of the courses which comprise the degree program are given in the Course Catalogue section of this Handbook. The program shown below is a standard program, i.e. that which can be completed in a minimum time.

**Academic Rules:**

The Rules governing the award of the degree of Bachelor of Technology (Aeronautical) are identical to the rules for the Bachelor of Technology (Aviation). Please refer to the rules for the Bachelor of Technology (Aeronautical) on page 83.

**Program:****First-Year Program**

Courses	UOC	
	S1	S2
ZACM1010 <i>Engineering Graphical Communications</i>		3
ZACM1020 <i>Statics</i>	3	
ZACM1040 <i>Dynamics</i>		3
ZACM1051 <i>Introduction to Flight</i>		3
ZACM1850 <i>History and Science of Aviation</i>	3	
ZACM1851 <i>Introduction to Aviation - a Systems Approach</i>		3
ZITE1001 <i>Computer Tools for Engineers</i>	3	
ZPEM1103 <i>Engineering Chemistry 1A</i>	3	
ZPEM1303 <i>Engineering Mathematics 1A</i>	6	
ZPEM1304 <i>Engineering Mathematics 1B</i>		6
ZPEM1503 <i>Engineering Physics 1A</i>	6	
ZPEM1504 <i>Engineering Physics 1B</i>		6

**Second-Year Program**

Courses	UOC	
	S1	S2
Four General Education Courses	6	6
ZACM2040 <i>Aircraft Performance and Stability</i>		3
ZACM2820 <i>Introduction to Aircraft Structures</i>	3	
ZACM2830 <i>Aviation Aerodynamics</i>	3	
ZACM2840 <i>Aircraft Performance for Aviators</i>		3
ZACM2850 <i>Aircraft Systems for Aviators</i>	6	
ZACM2851 <i>Aviation Safety</i>		6
ZACM3851 <i>Aviation Project</i>		3
ZITE2003 <i>Avionics for Aviators</i>	3	
ZPEM2511 <i>Introductory Meteorology AV</i>	3	
ZPEM2512 <i>Aviation Meteorology AV</i>		3

## Third-Year Program

Courses	UOC	
	S1	S2
ZACM3850 <i>Advanced Aviation Safety</i>	6	
ZACM3851 <i>Aviation Project*</i>	6	
ZACM3852 <i>Basic Flying Theory</i>	12	
ZACM3853 <i>Flying Training</i>		24

\* The course ZACM3851 *Aviation Project* provides the practical experience requirement specified in the rules governing Bachelor of Technology Degrees (Rule 3).

The courses listed below are available to students who are unable to complete ZACM3853 *Flying Training*. These courses provide an alternative educational path to the degree of BTech(Aviation). Enrolment in these courses as part of the BTech (Aviation) is at the discretion of the Head of the School of Aerospace, Civil and Mechanical Engineering.

ZACM3060 <i>Engineering Management 1</i>	3
ZACM3860 <i>Aviation Resource Management</i>	6
ZBUS2801 <i>Leadership and Management</i>	6
ZHSS2002 <i>Introduction to Strategic Studies</i>	6
Elective (1 at 3 units of credit)	3

## Elective Courses

Courses	UOC	
	S1	S2
ZACM4900 <i>Acoustic Noise</i>	3	
ZACM4920 <i>Non-Destructive Inspection</i>	3	
ZITE4222 <i>Systems Engineering</i>		3

Full details of Technology courses available in 2006 may be found in the Course Catalogue on page 93.

## Schedule of Course Offerings

## Schedules of courses for the Degrees of Bachelor of Arts and Bachelor of Science

In the following schedules, Level I courses (indicated by the 01 or 1 prefix) refer to introductory courses, Level IV (indicated by the 4 prefix) to Honours courses. Upper-level courses are indicated in the schedules by U.

## Schedule A—Arts Courses

Course No.	Course Name	Level
<b>Business, Economics and Management</b>		
ZBUS1101	Organisational Behaviour	I
ZBUS1102	Introduction to Economics	I
ZBUS1103	Introduction to Accounting and Finance	I
ZBUS2101	Business Law	U
ZBUS2001	Quantitative Methods in Economics and Management	U
ZBUS2200	Production, Prices and Trade	U
ZBUS2202	Growth and Fluctuations in Open Economies	U
ZBUS2205	Applied Economics	U
ZBUS2301	Management Accounting	U
ZBUS2303	Logistics Management	U
ZBUS2401	Finance	U
ZBUS2204	Asia-Pacific Economic Development	U
ZBUS2203	The Making of Economic Policy	U
ZBUS2302	Leadership	U
ZBUS2103	Human Resource Management	U
ZBUS2102	Project Management	U
ZBUS4201	Economics 4 (Honours) F/T	IV
ZBUS4202	Economics 4 (Honours) P/T	IV
ZBUS4203	Economics 4 (Combined Honours) F/T	IV
ZBUS4204	Economics 4 (Combined Honours) P/T	IV
ZBUS4301	Management 4 (Honours) F/T	IV
ZBUS4302	Management 4 (Honours) P/T	IV
ZBUS4303	Management 4 (Combined Honours) F/T	IV
ZBUS4304	Management 4 (Combined Honours) P/T	IV
<b>English</b>		
ZHSS1101	English 1A	I
ZHSS1102	English 1B	I
ZHSS2101	The English Renaissance	U
ZHSS2104	Studies in the Media	U
ZHSS2105	Modernism and After	U
ZHSS2106	The Century's Corpse	U
ZHSS2108	American Renaissance and After	U
ZHSS2109	Romanticism & Revolution	U
ZHSS2110	Modern Drama	U
ZHSS2111	Australian War Literature	U
ZHSS2112	Creative Writing and Reading	U
ZHSS2116	Australian Drama, Film and Television	U
ZHSS2119	Post-Colonial Literature	U
ZHSS2120	Heroism, Banditry and Manhood	U
ZHSS2112	The Hollywood Cut	U
ZHSS2121	Classic Literary Texts	U



ZHSS2122	Contemporary Theory and Criticism	U
ZHSS4191	English 4 (Honours) F/T	IV
ZHSS4192	English 4 (Honours) P/T	IV
ZHSS4193	English 4 (Combined Honours) F/T	IV
ZHSS4194	English 4 (Combined Honours) P/T	IV

**History**

ZHSS0200	Special Program (History)	I
ZHSS1201	History 1A	I
ZHSS1202	History 1B	I
ZHSS2201	East Asia: Between Tradition & Modernity	U
ZHSS2202	Modern Australia: Politics and Culture	U
ZHSS2203	Naval History and Sea Power in C20	U
ZHSS2204	The Rise of Modern Navies	U
ZHSS2206	Social Change in East Asia	U
ZHSS2207	Soviet History	U
ZHSS2209	The Making of Contemporary Society	U
ZHSS2210	The Origins of Modern War	U
ZHSS2211	The Second World War	U
ZHSS2212	Australian Military History 1788 to the Present	U
ZHSS2214	The History of Indonesian Defence Policy	U
ZHSS2215	Studies in International History	U
ZHSS2216	US Military History	U
ZHSS2217	Genocide: Crime of Crimes	U
ZHSS3201	History 3A (Preliminary Honours)	U
ZHSS3202	History 3B (Preliminary Honours)	U
ZHSS4201	History 4 (Honours) F/T	IV
ZHSS4202	History 4 (Honours) P/T	IV
ZINT2505	Custom and Change in Melanesia	U

**Indonesian**

ZHSS1301	Indonesian 1A	I
ZHSS1302	Indonesian 1B	I
ZHSS1303	Intermediate Indonesian 1C	I
ZHSS1304	Intermediate Indonesian 1D	I
ZHSS2301	Indonesian 2A	U
ZHSS2302	Indonesian 2B	U
ZHSS2303	Advanced Indonesian 2C	U
ZHSS2304	Advanced Indonesian 2D	U
ZHSS3301	Indonesian 3A	U
ZHSS3302	Indonesian 3B	U
ZHSS3303	Indonesian 3C	U
ZHSS3304	Indonesian 3D	U

**Indonesian – Malay Studies**

ZHSS2501	Contemporary Muslim Identity	U
ZHSS2502	Becoming Indonesian	U
ZHSS2503	State Systems in Pre-colonial Southeast Asia	U
ZHSS2402	Political Cultures in Asia and the Pacific	U
ZHSS2411	Political Change in Indonesia	U

**Politics**

ZHSS1401	Politics 1A	I
ZHSS1402	Politics 1B	I
ZHSS2401	Japan: From Warmonger to Peacekeeper	U

ZHSS2402	Political Cultures in Asia and the Pacific	U
ZHSS2403	Politics of China	U
ZHSS2404	Politics of the USA	U
ZHSS2407	War and Politics	U
ZHSS2408	Civil-Military Relations In the Asia-Pacific	U
ZHSS2410	Modern Political Ideologies	U
ZHSS2411	Political Change in Indonesia	U
ZHSS2412	Politics of Australian Security	U
ZHSS2414	Regional Security Issues	U
ZHSS2416	Politics of Southeast Asia	U
ZHSS2417	Ethnopolitics	U
ZHSS4491	Politics 4 (Honours) F/T	IV
ZHSS4492	Politics 4 (Honours) P/T	IV
ZHSS4493	Politics 4 (Combined Honours) F/T	IV
ZHSS4494	Politics 4 (Combined Honours) P/T	IV

**Schedule S—Science Courses**

Course No.	Course Name	Level
<b>Chemistry</b>		
ZPEM1101	Chemistry 1A	I
ZPEM1102	Chemistry 1B	I
ZPEM2101	Inorganic Chemistry 2	II
ZPEM2102	Organic Chemistry 2	II
ZPEM2103	Physical Chemistry 2	II
ZPEM2109	Environmental Chemistry	II
ZPEM2111	Marine Chemistry 2	II
ZPEM3101	Inorganic Chemistry 3	III
ZPEM3103	Physical Chemistry 3	III
ZPEM3106	Biological Chemistry	III
ZPEM3107	Explosives	III
ZPEM4101	Chemistry 4 (Honours) F/T	IV
ZPEM4102	Chemistry 4 (Honours) P/T	IV
ZPEM4103	Chemistry 4 (Combined Honours) F/T	IV
ZPEM4104	Chemistry 4 (Combined Honours) P/T	IV
<b>Computer Science</b>		
ZITE1101	Introduction to Computer Science	I
ZITE1102	Programming Fundamentals	I
ZITE2101	Computer Languages and Algorithms	II
ZITE2102	Computer Technology	II
ZITE3101	Computing Project – Computer Science	III
ZITE3102	Cryptography	III
ZITE3103	Data Structures and Representation	III
ZITE3104	Electronic Commerce	III
ZITE3105	Human Computer Interaction	III
ZITE3106	Interactive Computer Graphics	III
ZITE3107	Multimedia and Virtual Environments	III
ZITE3108	Java Programming Applications	III
ZITE3109	Knowledge Based Systems	III
ZITE3110	Software Engineering	III
ZITE3111	Special Topic	III
ZITE3211	Microcomputer Interfacing	III

ZITE3404	Simulation	III
ZITE4204	Communications Networks	III
ZITE4207	Digital Image Processing and Remote Sensing	III
ZITE4101	Computer Science 4 (Combined Honours) F/T	IV
ZITE4102	Computer Science 4 (Combined Honours) P/T	IV
ZITE4103	Computer Science 4 (Honours) F/T	IV
ZITE4104	Computer Science 4 (Honours) P/T	IV

**Mathematics and Statistics**

ZPEM1301	Mathematics 1A	I
ZPEM1302	Mathematics 1B	I
ZPEM2301	Linear Systems	II
ZPEM2302	Data Analysis	II
ZPEM2303	Modelling Continuous Systems	II
ZPEM2304	Discrete Dynamics	II
ZPEM2305	Networks and Patterns	II
ZPEM2306	Regression Modelling	II
ZPEM3301	Applied Mathematical Techniques	III
ZPEM3304	Projectiles	III
ZPEM3306	Fluid Mechanics	III
ZPEM3307	Waves	III
ZPEM3309	Elements of Optimisation	III
ZPEM3310	Financial Mathematics	III
ZPEM3311	Mathematical Methods for Differential Equations	III
ZPEM3312	Nonlinear Systems	III
ZPEM4301	Mathematics 4 (Honours) F/T	IV
ZPEM4302	Mathematics 4 (Honours) P/T	IV
ZPEM4303	Mathematics 4 (Combined Honours) F/T	IV
ZPEM4304	Mathematics 4 (Combined Honours) P/T	IV

**Oceanography**

ZPEM1401	Marine Science 1A	I
ZPEM1402	Marine Science 1B	I
ZPEM2401	Ocean Dynamics 2A	II
ZPEM2402	Ocean Dynamics 2B	II
ZPEM2403	Fundamentals of Remote Sensing	II
ZPEM3401	Ocean Circulation and Mixing	III
ZPEM3402	Continental Shelf Dynamics	III
ZPEM3403	Oceanographic Data Acquisition and Analysis	III
ZPEM3404	Internal Waves	III
ZPEM3405	Oceanography Research Report	III
ZPEM3406	Regional Oceanography	III
ZPEM3407	Oceanography Research Project	III
ZPEM4401	Oceanography 4 (Honours) F/T	IV
ZPEM4402	Oceanography 4 (Honours) P/T	IV
ZPEM4403	Oceanography 4 (Combined Honours) F/T	IV
ZPEM4404	Oceanography 4 (Combined Honours) P/T	IV

**Operations Research and Statistics**

ZITE1101	Introduction to Computer Science	I
ZITE1102	Programming Fundamentals	I
ZITE1301	Introduction to Information Systems	I

ZITE1302	Information Systems in Organisations	I
ZITE2401	Computer Tools for Decision Making	II
ZITE2402	Decision Analysis	II
ZPEM2302	Data Analysis	II
ZPEM2306	Regression Modelling	II

**Physics**

ZPEM1501	Physics 1A	I
ZPEM1502	Physics 1B	I
ZPEM2501	Electronic Properties of Materials	II
ZPEM2502	Waves and Remote Sensing	II
ZPEM2503	Astronomy and Astrophysics	II
ZPEM2506	Meteorology and Atmospheric Physics	II
ZPEM2507	Sonar and Underwater Optics	II
ZPEM3501	Atmospheric Dynamics	III
ZPEM3502	Cosmology and Relativistic Astrophysics	III
ZPEM3503	Electromagnetic Remote Sensing	III
ZPEM3504	Physics of Advanced Materials	III
ZPEM3521	Experimental Physics - Laboratory	III
ZPEM3522	Experimental Physics - Project	III
ZPEM3524	Navigation and Guidance Physics	III
ZPEM3528	Thermodynamics and Propulsion	III
ZPEM4501	Physics 4 (Honours) F/T	IV
ZPEM4502	Physics 4 (Honours) P/T	IV
ZPEM4503	Physics 4 (Combined Honours) F/T	IV
ZPEM4504	Physics 4 (Combined Honours) P/T	IV

**Schedule AS—Arts or Science Courses**

The following are regarded as Arts courses when associated with an Arts degree, and as Science courses when associated with a Science degree.

Course No.	Course Name	Level
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**Geography**

ZPEM1201	Geography 1A	I
ZPEM1202	Geography 1B	I
ZPEM2202	Biogeography	II
ZPEM2205	Geomorphology: Processes and Landscapes	II
ZPEM2206	Fundamentals of Remote Sensing and Geographic Information Analysis	II
ZPEM2207	Social Geography	II
ZPEM2209	Geographical Issues in the Asia-Pacific Region	II
ZPEM2210	Fundamentals of Geographic Information Analysis	II
ZPEM2403	Fundamentals of Remote Sensing	II
ZPEM3202	Cultural Geography	III
ZPEM3203	Ecological Systems	III
ZPEM3204	Environmental Hazards	III
ZPEM3207	Making Decisions in Geography	III
ZPEM3208	Geographic Research Methods	III
ZPEM3209	Geomorphological Systems	III
ZPEM3215	Transport Geography	III
ZPEM4201	Geography 4 (Honours) F/T	IV
ZPEM4202	Geography 4 (Honours) P/T	IV
ZPEM4203	Geography 4 (Combined Honours) F/T	IV
ZPEM4204	Geography 4 (Combined Honours) P/T	IV

**Information Systems**

ZITE1301	Introduction to Information Systems	I
ZITE1302	Information Systems in Organisations	I
ZITE2301	Design of Information Systems	II
ZITE2302	Operation of Information Systems	II
ZITE3301	Application of Information Systems	III
ZITE3302	Management of Work Systems	III
ZITE3303	Selection of Systems	III
ZITE3304	Computing Project – Information Systems	III
ZITE4301	Information Systems 4 (Combined Honours) F/T	IV
ZITE4302	Information Systems 4 (Combined Honours) P/T	IV
ZITE4303	Information Systems 4 (Honours) F/T	IV
ZITE4304	Information Systems 4 (Honours) P/T	IV

**Schedule GE – General Education Courses**

The General Education Course Schedule appears on page 49.

**Schedule DS – Directed Studies Courses**

The Directed Studies Course Schedule appears on page 47.

**Schedule of Courses for the Bachelor of Business Degree****Schedule B - Business Courses**

Course No:	Course Name	Level
<b>Business Core</b>		
ZBUS1101	Organisational Behaviour	I
ZBUS1102	Introduction to Economics	I
ZBUS1103	Introduction to Accounting and Finance	I
ZBUS1104	Integrating Core 1	I
ZBUS2101	Business Law	U
ZBUS2102	Project Management	U
ZBUS2103	Human Resource Management	U
ZBUS2104	Integrating Core 2	U
ZBUS3104	Integrating Core 3	U
ZITE2001	Managing Information Systems	U
<b>Business Electives</b>		
ZBUS2200	Production, Prices and Trade	U
ZBUS2301	Management Accounting	U
ZBUS2302	Leadership	U
ZBUS2202	Growth & Fluctuations in Open Economies	U
ZBUS2203	Making Economic Policy	U
ZBUS2204	Asia-Pacific Economic Development	U
ZBUS2205	Applied Economics	U
ZBUS2303	Logistics Management	U
ZBUS2401	Finance	U
ZITE3303	Selection of Systems	U

All courses in the schedule carry 6UOC.

**Schedule of Courses for the Bachelor of Engineering Degree****Schedule E1—Aeronautical Engineering****The First-Year Program**

ZACM1010	Engineering Graphical Communications
ZACM1020	Statics
ZACM1040	Dynamics
ZACM1050	Introduction to Aeronautical Engineering & Workshop Practice
ZACM1051	Introduction to Flight
ZINT1001	Engineering Computational Methods 1
ZITE1001	Computer Tools for Engineers
ZPEM1103	Engineering Chemistry 1A
ZPEM1303	Engineering Mathematics 1A
ZPEM1304	Engineering Mathematics 1B
ZPEM1503	Engineering Physics 1A
ZPEM1504	Engineering Physics 1B

**The Second-Year Program****One General Education Course**

ZACM2010	Design 1
ZACM2020	Materials Science
ZACM2021	Mechanics of Solids A
ZACM2022	Mechanics of Solids B
ZACM2030	Thermofluids
ZACM2031	Thermodynamic Cycles
ZACM2032	Real and Inviscid Flows
ZACM2040	Aircraft Performance and Stability
ZACM2041	Introduction to Vibration
ZITE2002	Principles of Electrical & Electronics Technology
ZPEM2309	Engineering Mathematics 2A
ZPEM2310	Engineering Mathematics 2B

**The Third-Year Program****Two General Education Courses**

ZACM3010	Aircraft Design 2
ZACM3011	Component Design
ZACM3020	Engineering Materials
ZACM3021	Structural Mechanics 1
ZACM3030	Gas Turbines
ZACM3031	Subsonic Finite Wing
ZACM3032	Rotary Wing 1
ZACM3040	Flight Dynamics & Control
ZACM3041	Introduction to Control
ZACM3060	Engineering Management 1
ZHSS2002	An Introduction to Strategic Studies
ZINT3001	Aircraft Systems & Avionics
ZACM4031	Compressible Flow

**The Fourth-Year Program****One General Education Course**

ZACM4010	Aircraft Design 3
ZACM4011	Aircraft Design 4
ZACM4020	Computational Structures
ZACM4021	Structural Mechanics 2
ZACM4030	Heat Transfer
ZACM4050	Aeronautical Engineering: Project Thesis & Practical Experience
ZACM4051	Maintenance Management & Repair
ZINT4001	Systems Engineering & Risk Management
Electives	(3 at 3 units of credit each)

**Schedule E2—Civil Engineering****The First-Year Program**

ZACM1010	Engineering Graphical Communications
ZACM1020	Statics
ZACM1040	Dynamics
ZACM1250	Civil Engineering Practice
ZINT1001	Engineering Computational Methods 1
ZITE1001	Computer Tools for Engineers
ZPEM1103	Engineering Chemistry 1A
ZPEM1104	Engineering Chemistry 1B
ZPEM1303	Engineering Mathematics 1A
ZPEM1304	Engineering Mathematics 1B
ZPEM1503	Engineering Physics 1A
ZPEM1504	Engineering Physics 1B

**The Second-Year Program****Two General Education Courses**

ZACM2020	Materials Science
ZACM2021	Mechanics of Solids A
ZACM2022	Mechanics of Solids B
ZACM2030	Thermofluids
ZACM2211	Engineering Surveying
ZACM2221	Geotechnical Engineering and Engineering Construction
ZACM2230	Fluid Engineering
ZACM2250	Environmental Engineering Fundamentals
ZPEM2309	Engineering Mathematics 2A
ZPEM2310	Engineering Mathematics 2B

**The Third-Year Program****Two General Education Courses**

ZACM3060	Engineering Management 1
ZACM3210	Structural Design 1A
ZACM3211	Structural Design 1B
ZACM3212	Environmental Engineering Applications
ZACM3213	Geometric Design of Transport Systems
ZACM3220	Civil Engineering Materials A
ZACM3221	Civil Engineering Materials B
ZACM3222	Geotechnical Engineering 2A
ZACM3223	Geotechnical Engineering 2B
ZACM3224	Structural Analysis 1A
ZACM3225	Structural Analysis 1B
ZACM3230	Hydraulics
ZHSS2002	An Introduction to Strategic Studies

**The Fourth-Year Program**

ZACM4210	Structural Design 2A
ZACM4211	Structural Design 2B
ZACM4220	Pavement Engineering
ZACM4223	Geotechnical Eng 3
ZACM4224	Structural Analysis 2
ZACM4231	Water Resources
ZACM4250	Environmental Engineering Practice
ZACM4252	Thesis and Seminar & Practical Experience, or
ZACM4253	Integrated Design & Practical Experience
ZACM4260	Engineering Management 2A
ZACM4261	Engineering Management 2B
Electives	(3 at 3 units of credit each)

**.Schedule E3—Electrical Engineering****The First-Year Program**

ZINT1001	Engineering Computational Methods 1
ZITE1001	Computer Tools for Engineers
ZITE1201	Circuits & Systems 1
ZITE1202	Digital Systems 1
ZITE1203	Digital Systems 2
ZITE1204	Electronics 1
ZITE1205	Programming Fundamentals for Engineers
ZPEM1106	Introduction to Engineering Materials for Electrical Engineers
ZPEM1303	Engineering Mathematics 1A
ZPEM1304	Engineering Mathematics 1B
ZPEM1505	Electrical Engineering Physics 1A
ZPEM1506	Electrical Engineering Physics 1B

**The Second-Year Program****2 General Education courses**

ZITE2201	Advanced Programming for Engineers
ZITE2202	Circuits and Systems 2
ZITE2203	Digital Systems 3
ZITE2204	Electronics 2
ZITE2205	Electronics Design Laboratory 1
ZITE2206	Signals and Systems
ZPEM2309	Engineering Mathematics 2A
ZPEM2310	Engineering Mathematics 2B
ZPEM2510	Electrical Engineering Physics 2

**Directed Studies:**

ZHSS2002	An Introduction to Strategic Studies
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**The Third-Year Program****2 General Education courses**

ZACM3060	Engineering Management 1
ZITE3201	Analogue Communications
ZITE3202	Control Theory 1
ZITE3203	Control Theory 2
ZITE3204	Digital Communications
ZITE3205	Electrical Power and Machines
ZITE3206	Electronics 3
ZITE3207	Electronics Design Laboratory 2
ZITE3208	Engineering Electromagnetics 1
ZITE3209	Engineering Electromagnetics 2
ZITE3210	Management Science E
ZITE3211	Microcomputer Interfacing
ZITE3212	Optoelectronic Techniques
ZITE3214	Power Electronics and Electrical Drives

**The Fourth-Year Program****Compulsory courses**

ZITE4299	Electrical Engineering: Project, Thesis, Laboratory Work, Practical Experience and Specialist Lectures
ZITE4222	Systems Engineering

7 Elective courses

**Schedule E4—Mechanical Engineering****The First-Year Program**

ZACM1010	Engineering Graphical Communications
ZACM1020	Statics
ZACM1040	Dynamics
ZACM1450	Introduction to Profession of Mechanical Engineering & Workshop Practice
ZINT1001	Engineering Computational Methods 1
ZINT2504	Introduction to Electrical & Mechanical Engineering Plant
ZITE1001	Computer Tools for Engineers
ZPEM1103	Engineering Chemistry 1A
ZPEM1303	Engineering Mathematics 1A
ZPEM1304	Engineering Mathematics 1B
ZPEM1503	Engineering Physics 1A
ZPEM1504	Engineering Physics 1B

**The Second-Year Program****One General Education Course**

ZACM2010	Design 1
ZACM2020	Materials Science
ZACM2021	Mechanics of Solids A
ZACM2022	Mechanics of Solids B
ZACM2030	Thermofluids
ZACM2031	Thermodynamic Cycles
ZACM2041	Introduction to Vibration
ZACM2230	Fluid Engineering
ZACM2440	Mechanics of Machines
ZITE2002	Principles of Electrical & Electronics Technology
ZPEM2309	Engineering Mathematics 2A
ZPEM2310	Engineering Mathematics 2B

**The Third-Year Program****Three General Education Courses**

ZACM3011	Component Design
ZACM3020	Engineering Materials
ZACM3021	Structural Mechanics 1
ZACM3030	Gas Turbines
ZACM3041	Introduction to Control
ZACM3060	Engineering Management 1
ZACM3410	Design 2
ZACM3430	Refrigeration
ZACM3431	Viscous Flows
ZACM3440	Dynamics of Mechanical Systems
ZACM3450	Instrumentation
ZHSS2002	Introduction to Strategic Studies

**The Fourth-Year Program**

ZACM4020	Computational Structures
ZACM4021	Structural Mechanics 2
ZACM4030	Heat Transfer
ZACM4051	Maintenance Management & Repair
ZACM4410	Design 3
ZACM4411	Design 4
ZACM4430	Turbomachines
ZACM4450	Mechanical Engineering: Project Thesis & Practical Experience
ZINT4001	Systems Engineering & Risk Management
Electives	(3 at 3 units of credit each)

**Schedule of Courses for the Bachelor of Technology Degree****Schedule BT1—Aeronautical Engineering****The First-Year Program**

ZACM1010	Engineering Graphical Communications
ZACM1020	Statics
ZACM1040	Dynamics
ZACM1050	Introduction to Aeronautical Engineering & Workshop Practice
ZACM1051	Introduction to Flight
ZINT1001	Engineering Computational Methods 1
ZITE1001	Computer Tools for Engineers
ZPEM1103	Engineering Chemistry 1A
ZPEM1303	Engineering Mathematics 1A
ZPEM1304	Engineering Mathematics 1B
ZPEM1503	Engineering Physics 1A
ZPEM1504	Engineering Physics 1B

**The Second-Year Program****One General Education Course**

ZACM2010	Design 1
ZACM2020	Materials Science
ZACM2021	Mechanics of Solids A
ZACM2022	Mechanics of Solids B
ZACM2030	Thermofluids
ZACM2031	Thermodynamic Cycles
ZACM2032	Real and Inviscid Flows
ZACM2040	Aircraft Performance and Stability
ZACM2041	Introduction to Vibration
ZITE2002	Principles of Electrical & Electronics Technology
ZPEM2309	Engineering Mathematics 2A
ZPEM2310	Engineering Mathematics 2B

**The Third-Year Program****Three General Education Courses**

ZACM3010	Aircraft Design 2
ZACM3011	Component Design
ZACM3020	Engineering Materials
ZACM3021	Structural Mechanics 1
ZACM3030	Gas Turbines
ZACM3031	Subsonic Finite Wing
ZACM3032	Rotary Wing 1
ZACM3040	Flight Dynamics & Control
ZACM3041	Introduction to Control
ZACM3060	Engineering Management 1
ZACM3650	Aero Project & Practical Experience
ZINT3001	Aircraft Systems & Avionics
ZPEM3527	Atmospheric Physics & Meteorology

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**Schedule BT2—Aviation**


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**The First-Year Program**

ZACM1010	Engineering Graphical Communications
ZACM1020	Statics
ZACM1040	Dynamics
ZACM1051	Introduction to Flight
ZACM1850	The History and Science of Aviation
ZACM1851	Introduction to Aviation - A Systems Approach
ZITE1001	Computer Tools for Engineers
ZPEM1103	Engineering Chemistry 1A
ZPEM1303	Engineering Mathematics 1A
ZPEM1304	Engineering Mathematics 1B
ZPEM1503	Engineering Physics 1A
ZPEM1504	Engineering Physics 1B

**The Second-Year Program**

Four General Education Courses	
ZACM2040	Aircraft Performance and Stability
ZACM2820	Introduction to Aircraft Structures
ZACM2830	Aviation Aerodynamics
ZACM2840	Aircraft Performance for Aviators
ZACM2850	Aircraft Systems for Aviators
ZACM2851	Aviation Safety
ZACM3851	Aviation Project
ZITE2003	Avionics for Aviators
ZPEM2511	Introductory Meteorology AV
ZPEM2512	Aviation Meteorology AV

**The Third-Year Program**

ZACM3850	Advanced Aviation Safety
ZACM3851	Aviation Project
ZACM3852	Basic Flying Theory
ZACM3853	Flying Training

The courses listed below are available to students who are unable to complete ZACM3853 *Flying Training*. These courses provide an alternative educational path to the degree of BTech(Aviation). Enrolment in these courses as part of the BTech (Aviation) is at the discretion of the Head of the School of Aerospace, Civil and Mechanical Engineering.

ZACM3060	Engineering Management 1
ZACM3860	Aviation Resource Management
ZBUS2801	Leadership and Management
ZHSS2002	Introduction to Strategic Studies
Elective	(1 at 3 units of credit)

# UNDERGRADUATE COURSE INFORMATION (COURSE CATALOGUE)

For assistance with the terms and abbreviations appearing in the Course Catalogue, please refer to the ADFA Handbook guide on page 7.

**Disclaimer:** The pre-requisites and corequisites listed within the following course descriptions indicate the assumed knowledge for the particular course. The pre-requisite course provides you with the appropriate foundation knowledge in order to progress to the course in question. Students are expected to be aware of the required pre-requisites and it is your responsibility to ensure that you have met any of the necessary pre-requisites and corequisites before enrolling in a course.

**Course Availability:** UNSW@ADFA reserves the right to cancel courses for which there are insufficient enrolments (normally a minimum of six is required). Advice of cancellation would normally be given to students within the first two weeks of teaching in a given session.

## SCHOOL OF AEROSPACE, CIVIL AND MECHANICAL ENGINEERING

### ZACM1010

#### Engineering Graphical Communications

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr F Irons

Engineering drawing is a language of graphical communication and design synthesis. Students will be able to both interpret and construct formal engineering drawings in accordance with the Australian Standards. Students will become familiar with how an engineering drawing is developed through checking, reading and control of engineering drawings. Students are assessed on their understanding of engineering drawings by the development and practice of sketching, isometric, orthographic, perspective, sectioning and assembly drawings. Problems in three-dimensional geometry are also taught to students. Finally, an introduction to Computer Aided Drawing (CAD), including computer based data analysis and presentation, is provided to the students.

### ZACM1020

#### Statics

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr A Webb

An Introduction to Newtonian Mechanics with applications to stationary particles, rigid bodies, beams and frames. Force vectors, particle equilibrium force system resultants and rigid body equilibrium. Application of these principles to the analysis of statically determinate frames. Internal forces in structural members, shear force and bending moment diagrams. Dry friction\ Distributed forces, centres of gravity of solids, centroids of areas, lines and volumes. Second moments of area.

### ZACM1040

#### Dynamics

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr N Mudford

This course is designed to develop an understanding of dynamics and problem solving skills as a basis for further study in engineering. The following topics will be treated: kinematics and kinetics of the plane motion of particles and rigid bodies; equations of motion; work, energy, impulse and momentum.

### ZACM1050

#### Introduction to Aeronautical Engineering & Workshop Practice

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S1 on-campus

*Staff Contact:* Dr F Irons

This course provides an introduction to Aeronautical Engineering through case studies that illustrate the importance of some aspects of engineering: history, engineering science, safety, economics and technology transfer, ethics and professionalism. Students are taught various skills in Workshop Practice during the mid-session break.

### ZACM1051

#### Introduction to Flight

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

*Staff Contact:* Dr M Harrap

This course introduces the student to the fundamentals of aerodynamics and flight mechanics. The following topics will be treated: Basic aircraft components; Properties of liquids and gases; The International Standard Atmosphere and its descriptive elements; Altimetry and airspeed; Fluid flow - boundary layers, laminar and turbulent flow; Subsonic and supersonic flow - Shock waves and Mach

Number; Bernoulli's equation and dynamic pressure; Air resistance - form drag and skin friction; Aerodynamic lift and airfoils - stagnation point, pressure coefficient, centre of pressure and pitching moments; Wing characteristics - downwash and induced drag; Introduction to propulsion, propellers, turbojets and rockets.

**ZACM1250****Civil Engineering Practice**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S1 on-campus

*Staff Contact:* Dr F Irons

Aims to introduce new students to the profession and practice of civil engineering by providing an historical and technical perspective of the impact of civil engineering and building on society, trade, commerce and infrastructure development through the ages. The course details the development of the various branches of the profession and provides a background to contemporary issues such as professional responsibilities and ethics, sustainable development and environmental management, workplace democracy and occupational health and safety. The course incorporates a field trip and construction experience during the May recess.

**ZACM1450****Introduction to Profession of Mechanical Engineering & Workshop Practice**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S1 on-campus

*Staff Contact:* Dr F Irons

This course provides an introduction to the Profession of Engineering through case studies that illustrate the importance of some aspects of engineering: history, engineering science, safety, economics and technology transfer, ethics and professionalism. Students are taught various skills in Workshop Practice during the mid-session break.

**ZACM1850****History and Science of Aviation**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S1 on-campus

*Staff Contact:* Mr R Lewis

This course provides an introduction to Flight. The basic science of flight will be presented and used to develop an understanding of the key historical developments in Aviation technology.

**ZACM1851****Introduction to Aviation - A Systems Approach**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

*Staff Contact:* Ms S Burdekin

An introduction to Aviation as a system. The Aircraft, Aircrew, Flying Operations and Air Traffic Services Management as major components of the Aviation System. Aircraft components and function, flight mechanics and handling. Aviation human factors and an introduction to systemic safety issues involving aircraft accident cas studies. Classification and use of airspace - civil and military, flight separation, aircraft performance and basic meteorology. The theme throughout this subject will be aviation regulations, professional responsibilities, ethics and safety.

**ZACM2010****Design 1**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S1 on-campus

*Staff Contact:* Dr W Smith

Students are introduced to design principles and processes, and engineering report writing. An innovative design project (Warman Design and Build Competition) is also attempted by the students as a group effort.

**ZACM2020****Materials Science**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof S Yeomans

*Prerequisite/s:* ZPEM1103

Crystalline lattices, cast and wrought structures. Phase transformations. Plastic deformation and annealing, hot and cold working, strengthening mechanisms. Metallurgy of steels, equilibrium and non-equilibrium transformations. Alloying, hardenability and heat treatment. Non-ferrous metallurgy. Aluminium alloys, heat-treatable and non-heat-treatable alloys, age hardening. Copper-based alloys, brasses and bronzes. Welding metallurgy, fusion zone and heat affected zone. Weldability of steels, aluminium alloys. Mechanical behaviour. Tension, compression, impact, fatigue, creep. Ductile and brittle fracture. Corrosion mechanisms and processes.



## ZACM2021

### Mechanics of Solids A

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

Staff Contact: Dr O Kayali

Prerequisite/s: ZACM1020

An introductory course in the behaviour and analysis of solid objects under various loadings. The course introduces the fundamental concepts of stress and strain to quantify the behaviour of solid objects. The course extends the work done in the course ZACM1020 *Statics* to enable more detailed behaviour of solids to be presented.

## ZACM2022

### Mechanics of Solids B

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Dr W Smith

Prerequisite/s: ZACM1020

This course covers the following topics; bending of beams, deflection of beams, beams with non-rectangular and asymmetric cross-sections, Euler buckling of columns and Castigliano's theorems.

## ZACM2030

### Thermofluids

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW6

S1 on-campus

Staff Contact: Mr J Young

Prerequisite/s: ZACM1020 and ZACM1040

This course examines the role of thermodynamics and fluid mechanics in engineering. It develops an understanding of the basic properties of fluids, fluid statics, simple analysis of fluid motion, the laws of thermodynamic, and the application of control volume techniques to engineering problems.

## ZACM2031

### Thermodynamic Cycles

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Dr R Boyce

This course extends the development of thermodynamic cycle analysis commenced in ZACM2030 *Thermofluids*. The 2nd Law of Thermodynamics is introduced and, in conjunction with the other Laws, is applied to the analysis of power cycles. Power cycles represent the thermodynamic behaviour of machines such as compressors, pumps and engines.

## ZACM2032

### Real and Inviscid Flows

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact/s: Mr H Kleine and Mr J Young

System behaviour is best described by an appropriate set of non-dimensional combinations of the variables on which it depends. The dimensional analysis technique, elucidated here, allows systematic discovery of such parameter sets. Potential flow theory provides solutions for flows for which viscosity is assumed zero. This theory is developed here to explain and quantify airfoil lift and pitching moment. Unfortunately, viscosity cannot always be ignored as it strongly influences real flows via phenomena such as boundary layer separation. Viscosity's role in laminar and turbulent flow is examined to explain the gap between potential flow theory prediction and experimental observation.

## ZACM2040

### Aircraft Performance and Stability

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Mr M Garratt

Prerequisite/s: ZACM1051

This course considers the forces acting on an aircraft and the consequence of those forces both in equilibrium and in the unsteady case. This course will explore aircraft performance in various equilibrium flight conditions such as level flight, climbing, turning, and gliding. The mathematical basis for aircraft static stability will be introduced including derivation of the contribution of various aircraft components to overall stability. Aircraft dynamic behaviour will be explained using a qualitative approach. Basic aircraft handling and flying qualities will be introduced.

## ZACM2041

### Introduction to Vibration

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Mr M Tahtali

Prerequisite/s: ZACM1040

Mostly single degree of freedom systems will be considered. System modelling and linearisation using free body diagrams and energy methods. The solution to the free vibration of undamped and damped systems. Forced response to harmonic, rotating unbalance and base excitations. The response to generalised forcing functions. Steady state vibration analysis, vibration isolation methods and alternative models for damping. Vibration measurement techniques, the base excitation problem. Multiple degree of freedom systems will be introduced.

The matrix notation, state vector formulation and the modelling of lumped parameter systems will be shown leading to the eigenvalue problem and modal analysis.

**ZACM2211****Engineering Surveying**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Mr G Barker

Historical aspects. Elementary error theory. Surveying instrumentation and methods including levels, theodolites, electronic distance measurement, total stations, satellite position fixing, horizontal and vertical control and detail surveys. Introduction to MGA projections and introduction to GIS. This course incorporates a survey camp during the May break.

**ZACM2221****Geotechnical Engineering & Engineering Construction**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW6

S2 on-campus

*Staff Contact:* Assoc Prof S Lo

*Prerequisite/s:* ZACM1020

This course comprises of two units, Geotechnical Engineering and Engineering Construction. Both components must be passed. Geotechnical Engineering- Introduction to engineering geology. Effective stress principle. Drained and undrained conditions. Water and seepage in soils. Introduction to shear strength of soils. Introduction to one-dimensional consolidation and settlement analysis. Engineering Construction: The civil engineering industry. Interface between design and construction. Compressed air and water system. Material moving system. Earthworks, Concrete, steel, timber and masonry construction. Foundation construction. Maritime construction.

**ZACM2230****Fluid Engineering**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr R Niven

Studies of laminar and turbulent flow, boundary layers, lift and drag, dimensional analysis and modelling. Fluid resistance and the flow of real fluids. Friction and minor losses in single pipelines. Introduction to compressible flow.

**ZACM2250****Environmental Engineering Fundamentals**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr R Niven

An introduction to the science of environmental engineering. Fundamentals of chemistry, microbiology, dispersion of pollutants, single species kinetics and interacting species. Unit operations.

**ZACM2440****Mechanics of Machines**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Mr M Tahtali

*Prerequisite/s:* ZACM1040

In this course kinematics and kinetics of mechanisms will be investigated along with the effects of inertia and external loads. The problem of balancing of rotating and reciprocating masses, whirling of shafts and basic rotor dynamics will be also covered.

**ZACM2820****Introduction to Aircraft Structures**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr A Neely

*Prerequisite/s:* ZACM1020 and ZACM1040

This course will introduce the student to the fundamental concepts of aircraft structures. Aircraft structural requirements will be examined including fuselage and wing loadings and a range of suitable designs will be discussed. The course will review a number of topics including: mechanical properties of a range of aircraft structural materials; fracture behaviour, fatigue and corrosion in metals; introduction to composite materials; load bearing characteristics of aircraft structures-bending shear and torsion and also manufacturing, joining and assembly methods. Historical case studies and a number of practical demonstrations will be used throughout the course to illustrate the concepts.

**ZACM2830****Aviation Aerodynamics**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S1 on-campus

*Staff Contact:* Dr A Neely

*Prerequisite/s:* ZACM1051

This course builds upon the aerodynamics introduced in Introduction to Flight and focuses on the factors relevant to aircraft operations. The following topics will be treated: the equations of continuity, momentum and energy applied to fluid flow; airfoil and wing performance in subsonic and supersonic flight including drag divergence, wave drag, wing planform, aspect ratio and lift augmentation; primary and secondary effects of aircraft controls; aircraft force balance and trim; aerodynamic and mass balancing of control surfaces; effects and factors which influence flow separation; auto rotation and spins; shock stall and the area rule.

#### **ZACM2840**

##### **Aircraft Performance for Aviators**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Dr R Boyce

Prerequisite/s: ZACM1051

Corequisite/s: ZACM2040

This course deals with aircraft performance from the pilot's perspective and dovetails with ZACM2040 *Aircraft Performance and Stability*. The following topics are treated: Power, thrust and the Froude efficiency; Wing loading and power loading; Cruise flight strategies - effects of wind, altitude and wing loading; Strategies for maximum rate and maximum gradient climbs - High performance climbs; Descent performance and phases; Takeoff and landing speeds and distances; Manoeuvring flight - pull up and level turns, turn performance diagram; energy methods. Take off and landing - initial climb, approach and flare.

#### **ZACM2850**

##### **Aircraft Systems for Aviators**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW5

S1 on-campus

Staff Contact: Mr R Lewis

General arrangement of aircraft systems. Purpose of aircraft systems. Design of mechanical type aircraft systems. Overview of non-mechanical type aircraft systems. Design of systems integration. Propulsion technologies including pistonprops, turbojets, turbofans and turboprops. Fundamentals of gas turbine technology. Advanced gas turbines. The characteristics and operation of power plants in terms of efficiency and performance and typical applications.

#### **ZACM2851**

##### **Aviation Safety**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW5

S2 on-campus

Staff Contact: Ms S Burdekin

Prerequisite/s: ZACM1851

Using a systems approach this course will deal with the various elements which influence safety in aviation including aircrew, aircraft, maintenance, management operational and airspace with an emphasis on human performance. Aviation human factors: the study of the relationship between the safety and efficiency of an aviation system and the people, tasks, environment and technology making up that system. Human behaviour, information processing, time management and situational awareness, judgement and decision making, the senses, human error, automation, risk management, safety culture and emergency equipment. The relationship between human abilities and task performance in aviation system, particularly within the cockpit environment. Ethics and professional responsibilities. A number of aircraft accidents will be analysed to illustrate key concepts in flight safety and its philosophy. Industry practitioners will deliver guest lectures and local field trips to aviation safety related civil and military organisations are planned.

#### **ZACM3010**

##### **Aircraft Design 2**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Dr R Heslehurst

Prerequisite/s: ZACM2010

Initial discussion covers aircraft design philosophies, design standards and regulations. In-depth coverage of design specification development. Instruction in design report writing and technical presentations. Aircraft conceptual design development is covered including development of fixed wing aircraft using initial sizing parameters, estimate of maximum take-off weight, wing loading, power loading, aerodynamic coefficients and physical dimensions. A discussion follows on special features of the aircraft and how these issues impact on performance and operational requirements. Students commence the aerospace design and build project during this course.

#### **ZACM3011**

##### **Component Design**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

Staff Contact: Dr T Ray

Students are exposed to the principles of machinery and component design: example topics include springs, bearings, gears, linkages, brakes and clutches, standard hardware, fasteners, tapers. Studies considering what components do, how they do it, how they were made, and possible forms are undertaken. Various design philosophies, such as safe life, fail safe, damage tolerance are discussed.

**ZACM3020****Engineering Materials**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* A/Prof S Yeomans and Dr K Shankar*Prerequisite/s:* ZACM2020

This course deals with engineering materials in aerospace and mechanical engineering. Topics include aluminium aerospace alloys, high strength steels, tool and die steels, stainless steels, cast irons, and exotic metals. Other topics cover quality assurance in welded fabrication and materials selection, design and maintenance for corrosion, protection. The other major topics deal with composites and adhesive materials including fibres, matrices and core materials, composite fabrication methods and techniques and cost estimation. Other topics include composites in the environment, composite and adhesive materials testing and certification and CMC and MMC development and application.

**ZACM3021****Structural Mechanics 1**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr K Shankar*Prerequisite/s:* ZACM2022

This course introduces the students to application of the concepts of Solid Mechanics to Aeronautical and Mechanical Engineering structures. Course Contents: The course will start with a revision of the basic concepts of solid mechanics and treat topics such as bending of indeterminate beams and beams with unsymmetric cross sections, stresses due to torsion and transverse loading of thin walled and semi-monocoque structures, thin and thick-walled pressure vessels.

**ZACM3030****Gas Turbines**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr A Neely*Prerequisite/s:* ZACM2030 and ZACM2031

This course is designed to enable the student to develop an understanding of the operation of gas turbines for civil, marine and aircraft applications with an emphasis on aero propulsion. Both ideal and real operating cycles are examined and tools for the thermodynamic analysis of these cycles are developed to enable calculation of gas turbine performance. Many examples from actual installed gas turbines are discussed.

**ZACM3031****Subsonic Finite Wing Theory**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr N Mudford*Prerequisite/s:* ZACM2032

The finite span of a real aircraft wing creates three dimensional flow effects, such as downwash, which reduce the wing's total lift and increase its drag from that expected from direct application of airfoil (infinite span wing) behaviour. Prandtl's classic and general lifting line theories are presented to obtain lift and drag estimates for finite wings in incompressible flow. This theory is extended to panel methods applicable to straight and swept finite wings and to blade element theory applicable to propellers.

**ZACM3032****Rotary Wing 1**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

*Staff Contact:* Mr M Garratt*Prerequisite/s:* ZACM2032

Basic helicopter configurations and rotor systems. Actuator disc and blade element theories. Rotor aerodynamics in vertical and forward flight. Rotor ground effect. Auto-rotation.

**ZACM3040****Flight Dynamics and Control**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

*Staff Contact:* Dr A Sreenatha*Prerequisite/s:* ZACM2040 and ZACM3041

This course is designed to develop an understanding of the dynamics and control of aircraft. The equations of motion governing the aircraft dynamics and their transfer functions are formulated. Based upon this, the time response and the frequency response of the aircraft are discussed. The short period and phugoid motions in longitudinal dynamics, dutch roll, roll and spiral motions in lateral dynamics, and methods to improve these motions based upon feedback control are discussed. Different autopilots employed in the Flight control system of an aircraft are treated.

### ZACM3041

#### Introduction to Control

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

Staff Contact: Mr M Garratt

Prerequisite/s: ZACM1040

This course provides an introduction to the theory of automatic control systems. The course will enable students to predict system behaviour analytically and design effective feedback control systems that will meet performance specifications in spite of uncertainties in the model. The concepts of feedback, transfer functions, frequency response and the s-plane will be developed. Students will be introduced to a broad range of control design tools including mathematical modelling of system components, block diagram manipulation, linearisation of non-linear models, inverse Laplace transform methods, root locus diagrams and Bode plots. Students will study practical controllers such as the PID controller.

### ZACM3060

#### Engineering Management 1

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Mr E Wilson

An introduction to the project management body of knowledge. Resource planning and financial management. Work breakdown structures. Sequencing tasks and scheduling resources. Quality and risk assessment. Engineering contracts and legal procedures. Professional responsibilities of the engineer including ethics, duty of care, legal liabilities, understanding of social and cultural issues. The development and nature of project teams. Role of the engineer in team activities and as a leader and manager. Case studies on Defence leadership of project teams and project management.

### ZACM3210

#### Structural Design 1A

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Mr G Barker

Prerequisite/s: ZACM2022

Design philosophy and design processes. Considerations of main construction materials. Codes of practice and their role. Types of loads and their combinations. Design of simple steel structures including: design for tension, bending and compression. Design of connections. Steel design detailing. Timber design and construction including characteristics of structural timber, design procedures, design of timber beams and columns and design of tension members. Connections in timber. Examples and case studies.

### ZACM3211

#### Structural Design 1B

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

Staff Contact: Dr O Kayali

Prerequisite/s: ZACM2022

Design methods and concepts for reinforced concrete. Limit states philosophy in design. Use of codes and standards. Loads and load combinations. Strength of rectangular sections in bending. Analysis and design of flanged sections. Shear strength and shear and torsion reinforcement. Design of continuous beams. Design of one-way slabs. Deflection of beams. Bond and anchorage. Methods of detailing. Introduction to masonry design.

### ZACM3212

#### Environmental Engineering Applications

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Dr A Webb

Prerequisite/s: ZACM2250

Applications of the science of environmental engineering. Studies of jets, wakes and plumes, surface water pollution, soil and groundwater contamination, air pollution and noise pollution.

### ZACM3213

#### Geometric Design of Transport Systems

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

Staff Contact: Mr G Barker

Prerequisite/s: ZACM2211

This course covers the geometric design of rural roads, airfields and railways and basic considerations for over the shore operations. Topics include survey requirements, horizontal and vertical alignment theory; road, airfield and railway design standards; route planning, design of the final alignment, ports and tide calculations and digital information systems.

### ZACM3220

#### Civil Engineering Materials A

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Assoc Prof S Yeomans

Prerequisite/s: ZACM2020

Metals as engineering materials. Steels, aluminium alloys and other metals used in engineering construction. Design against brittle fracture and fatigue in structures. Fracture mechanics and structural assessment. Welding in structural engineering. Standards, quality assurance, testing and inspection. Corrosion environments and corrosion protection systems. Timber materials and engineering considerations.

**ZACM3221****Civil Engineering Materials B**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr O Kayali

*Prerequisite/s:* ZACM2020

Concrete making materials and their influences on fresh and hardened concrete. Portland cement, aggregates, admixtures. Studies of the workability and consistency of concrete, variability, durability and permeability. Properties of concrete and use of non-destructive testing. Role of concrete materials in the design and construction processes.

**ZACM3222****Geotechnical Engineering 2A**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr C Gnanendran

*Prerequisite/s:* ZACM2221

Application of the effective stress principle in geotechnical engineering. Shear strength of soils. Principles of triaxial testing. Lateral earth pressure theory and design of simple gravity retaining structures. Influence of seepage on ability of retaining structures. Ground investigation.

**ZACM3223****Geotechnical Engineering 2B**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr C Gnanendran

Stress analysis in geotechnical engineering. One-dimensional consolidation theory. Settlement of shallow foundation and bearing capacity theory. Design of shallow footings and introduction to slope stability.

**ZACM3224****Structural Analysis 1A**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Mr G Horoschun

*Prerequisite/s:* ZACM2022

Types of structures and loads. Analysis of statically determinate structures. Analysis of plane trusses. Internal loads in structural members. Shear force and bending moment diagrams for beams and frames. Statically determinate cable and arch structures. Influence lines. Deflections of beams, frames and trusses. Use of force method.

**ZACM3225****Structural Analysis 1B**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Mr G Horoschun

*Prerequisite/s:* ZACM2022

Slope-deflection method and moment distribution. Truss, beam and frame analysis using the stiffness methods. An introduction to structural dynamics.

**ZACM3230****Hydraulics**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr R Niven

*Prerequisite/s:* ZACM2230

Pipe friction, pipe networks, combined turbo-machine and pipe systems. Open channels including friction losses, energy, momentum, gradually varied flow and rapidly varied flow. Studies of flow measurement and unsteady flow. Water wave theory and wave transformation.

**ZACM3410****Design 2**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr T Ray

*Prerequisite/s:* ZACM2010

Conceptual design of systems and subsystems, design as a constructive systematic integrative process. Introduction to design process models. Decision-based design: selection. Design process planning and management. Communication of design information. Relevant project based domain topics. Major design project covering specification development to concept selection.

### ZACM3430

#### Refrigeration

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

Staff Contact: Dr R Boyce

Prerequisite/s: ZACM2031

Following on from ZACM2031 *Thermodynamic Cycles*, which deals primarily with power cycles, this course commences with the analysis of thermodynamic cycles whose purpose is the transfer of heat. Such cycles represent the thermodynamic behaviour of refrigerators and heat pumps. Additionally, the course examines the thermodynamic behaviour of gas mixtures, and relates the results to the air stream mixing and humidification inherent in air conditioning systems. Finally, the thermodynamics of gaseous combustion are studied in order to understand how heat is produced by the burning of fuels.

### ZACM3431

#### Viscous Flows

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Dr H Kleine

Prerequisite/s: ZACM2032 and ZACM2230

This course aims at developing an understanding of the physical mechanisms underlying friction effects in a fluid flow and at introducing some basic tools to calculate/estimate the consequences of viscosity in a fluid. The following topics will be treated: laminar and turbulent boundary layers; viscous flows in pipes; different forms of drag on immersed bodies; flow separation.

### ZACM3440

#### Dynamics of Mechanical Systems

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

Staff Contact: Dr A Sreenatha

Prerequisite/s: ZACM2041

This course presents the application of control theory to some basic mechanical systems. In addition, concepts of vibration analysis such as Modal Analysis will be introduced for both discrete systems and continuous systems. The equivalence of continuous and discrete systems modelling will be brought out by typical examples. Important concepts like mode shapes and their orthogonal properties with respect to mass and stiffness matrices will be introduced for both continuous and discrete systems.

### ZACM3450

#### Instrumentation

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

Staff Contact: Dr M Harrap

Prerequisite/s: ZITE2002

Many engineering activities require the use of instrumentation. This may involve ensuring a bolt is tensioned to the correct torque, a machine is not vibrating excessively, the temperature in the tailpipe of a gas turbine is not exceeding the design limits or determining the extension of a hydraulic ram in a robotic arm. The aim of this course is to provide an experience that will lead students to a deep understanding of the fundamentals of Engineering Instrumentation. This course provides an opportunity to learn the basic principles and application of instrumentation. Students will be given a number of lectures outlining background theory, tutorials and a practical construction project.

### ZACM3650

#### Aero Project and Practical Experience

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Mr J Young

The project takes the form of a minor piece of research or investigation, a feasibility study, or a literature review. Project management techniques will be adopted and assessed in the implementation of the project. Satisfactory completion of the Practical Engineering Experience Requirement, viz rule 6 of the Rules governing the award of the degree of Bachelor of Technology.

### ZACM3850

#### Advanced Aviation Safety

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW4

S1 on-campus

Staff Contact: Ms S Burdekin

Prerequisite/s: ZACM2851

Aviation systems safety management programs. The role of proactive safety systems - crew resource management, safety culture, non-punitive confidential reporting systems, attitude and operational surveys, simulator training, creating a feedback loop, behavioural assessment and safety program audits. Aircraft manufacturer accident prevention strategy work, operational database analysis and safety program evaluation methodology. Case studies will be used to illustrate safety concepts.

**ZACM3851****Aviation Project**

UC School of Aerospace, Civil and Mechanical Eng

UOC9 HPW18

S1 on-campus, S2 on-campus

*Staff Contact:* Dr M Harrap

This project will take the form of a minor piece of research or investigation, feasibility study, or a literature review.

**ZACM3852****Basic Flying Theory**

UC School of Aerospace, Civil and Mechanical Eng

UOC12 HPW18

S1 on-campus

*Staff Contact:* Dr M Harrap

This course provides the background knowledge to prepare students for ADF flying training. The following topics are treated: aircraft systems, airmanship, air traffic control, cockpit systems and navigation, morse code, gas turbine engines.

**ZACM3853****Flying Training**

UC School of Aerospace, Civil and Mechanical Eng

UOC24 HPW20

S2 on-campus

*Staff Contact:* Dr M Harrap

Basic and advanced flying training to ADF 'wings' standard. This training is provided by the ADF.

**ZACM3860****Aviation Resource Management**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW4

S2 on-campus

*Staff Contact:* Mr R Lewis

The student is introduced to Australian Defence Force and civil aviation activities at an operational level. Issues include engineering and maintenance, technical crew planning and scheduling, airport and airfield planning for military and civil operations, operations control issues, emergency procedure management, accident investigation and despatch reliability management.

**ZACM4010****Aircraft Design 3**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr R Heslehurst

*Prerequisite/s:* ZACM3010

Student will learn how to develop estimates of the detailed aerodynamic aircraft parameters. This will allow them to construct aircraft performance charts and stability and control plots for a given design. The integration of the aircraft with on-board systems and major components will be covered in detail. The course will emphasise the continuation of the aerospace design and build project.

**ZACM4011****Aircraft Design 4**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr R Heslehurst

*Prerequisite/s:* ZACM4010

Exposure to an understanding of military and civilian airworthiness and certification requirements in aircraft design. Study in detail the construction of the V-n diagrams, and damage tolerant and fatigue design concepts. Aircraft design optimisation and trade studies are then considered. Aircraft costing and scheduling estimates are developed and compared across like types of aircraft. Maintainability and reliability design approaches are discussed in some detail and integrated into a design. The aerospace design and build project is concluded during the course. Students introduced to the complexities of helicopter and V/STOL vehicle design.

**ZACM4020****Computational Structures**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr T Ray

*Prerequisite/s:* ZINT1001, ZACM2021, ZACM2022

This course will be an introduction to Finite Element Stress (FEM) analysis. The theory section will consist of the application of Energy Methods, Variational Methods and Weighted Residual Methods to structural analysis. The students will be experimenting with modern FEM techniques during assisted computer sessions each week.

**ZACM4021****Structural Mechanics 2**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr K Shankar

*Prerequisite/s:* ZACM3021

This course presents advanced concepts in Structural Mechanics as applied to Aeronautical and Mechanical Engineering. Course Contents: The course will comprise topics such as modes of failure in metallic structures, strength and failure criteria, stress concentrations, stresses around cracks, fracture mechanics, crack initiation, crack propagation, fatigue in metallic structures, and determination of residual strength and residual life of structures.



## ZACM4030

### Heat Transfer

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

Staff Contact: Dr N Mudford

Prerequisite/s: ZACM2032 or ZACM2230

This course examines the three heat transfer mechanisms - conduction, convection and electromagnetic radiation. Solutions are obtained for one dimensional steady heat conduction through composite, plain and tubular walls, including with internal heat generation. Analytic and numerical solution techniques for non-steady conduction are also studied. The Reynolds' analogy is introduced to link forced convective heat transfer with momentum transfer in laminar and turbulent boundary layers. Free convection, in which heat transfer itself induces its own buoyant flow is then considered. The radiative emission characteristics of black and grey bodies are examined and radiative heat transfer between such bodies is analysed.

## ZACM4031

### Compressible Flow

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Dr N Mudford

Prerequisite/s: ZACM3031

At flight speeds beyond 30% of the speed of sound, compressibility must be considered in order to accurately describe the behaviour of aircraft. This course first considers the general nature of isentropic expansion and compression of gases in subsonic and supersonic flows. Non-isentropic compression by shock waves in supersonic flow is then considered and discussed. Prandtl-Meyer expansions, shock expansion theory and the method of characteristics are also covered. These studies lead on to the explanation and quantification of the behaviour of airfoils, finite wings, slender bodies and aircraft in compressible subsonic, transonic and supersonic flows.

## ZACM4050

### Aeronautical Engineering: Project, Thesis and Practical Experience

UC School of Aerospace, Civil and Mechanical Eng

UOC15 HPW8

S1 on-campus, S2 on-campus

Staff Contact: Dr R Boyce

The project takes the form of a minor piece of research or investigation, a major feasibility study or design, or a comprehensive literature review. Project management techniques are adopted and assessed in the implementation of the project. Satisfactory completion of the Practical Engineering Experience Requirement, viz. rule 6 of the Rules governing the award of the degree of Bachelor of Engineering.

## ZACM4051

### Maintenance and Management Repair

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

Staff Contact: Mr E Wilson

This course introduces students to maintenance management principles and techniques, including: maintenance strategies, repair/replacement decision making, condition monitoring, maintenance management information systems. Logistics engineering is introduced through the following aspects: logistics concepts, statistics of reliability, availability, maintainability, repairability, life-cycle costing, logistic support analysis, and supply support factors. Practical issues in maintenance and repair of structures and systems and details of maintenance scheduling activities are considered. Advanced methods of maintenance and repair are discussed.

## ZACM4210

### Structural Design 2A

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

Staff Contact: Mr G Horoschun

Prerequisite/s: ZACM3210

Design of steel members to resist individual and combined actions. Assessment of second order effects. Stability of building frames. Design of steel connections. Structural steel detailing. Torsion of structural members. Wind and earthquake loading on structures. Design of simple building frames. Fatigue effects. Use of Design Capacity Tables. Computer analysis and design of steel structures.

## ZACM4211

### Structural Design 2B

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

Staff Contact: Mr G Horoschun

Prerequisite/s: ZACM3211

Design of two-way slabs by the various Australian Code recognised methods. Design of short columns and slender columns. Design of footings. Design for durability. Design for serviceability. Introduction to prestressed concrete analysis and design. Design for earthquake occurrence.

**ZACM4220****Pavement Engineering**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr C Gnanendran

*Prerequisite/s:* ZACM3222 and ZACM3223

Study of the best use of natural materials for road and airfield pavement construction. Issues in site investigation and field testing for pavements, and bituminous materials and their testing. Rigid and flexible roads and airfield pavements. Pavement drainage. Structural design of unsealed and sealed pavements. Pavement evaluation and maintenance and an introduction to pavement management.

**ZACM4223****Geotechnical Engineering 3**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof S Lo

*Prerequisite/s:* ZACM3223

Non-linear stress strain behaviour. Limit state design in geotechnics. Slope stability and retaining systems, deep foundations, ground improvement and soft soil engineering.

**ZACM4224****Structural Analysis 2**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* TBA

Plastic analysis of structures. Stability of bars and frames. Non-linear analysis of structures. Introduction to finite element methods.

**ZACM4231****Water Resources**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

*Staff Contact:* Dr A Webb

Studies of hydrological processes in surface and groundwater, precipitation, runoff, evapotranspiration, infiltration, recharge and discharge. Practical applications of hydrology. Principles of water resources assessment, design, development, monitoring and equitable management.

**ZACM4250****Environmental Engineering Practice**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr A Webb

Engineering solutions to environmental problems. Studies of wastewater and water treatment unit processes and systems, air pollution management, contamination investigation and monitoring. Considerations of environmental management, economics, legislation and environmental impact assessment, particularly in Defence.

**ZACM4252****Civil Engineering: Thesis & Seminar & Practical Experience**

UC School of Aerospace, Civil and Mechanical Eng

UOC12 HPW12

S1 on-campus, S2 on-campus

*Staff Contact:* Dr C Gnanendran

The thesis project takes the form of a minor piece of research or investigation, a feasibility study, or a literature review. A staff member is nominated as supervisor to provide guidance and general supervision. Results will be presented both as a written thesis and as an oral seminar presented to staff and students of the School. For description of practical experience requirements see Rules governing the award of the degree of Bachelor of Engineering. Includes a requirement for seminar attendance (equivalent to 8 x 1 hour sessions), including research seminars (4), professional meetings (2) and academic seminars on leadership (2).

**ZACM4253****Integrated Design & Practical Experience**

UC School of Aerospace, Civil and Mechanical Eng

UOC12 HPW11

S1 on-campus, S2 on-campus

*Staff Contact/s:* Mr G Barker and Mr G Horoschun

Design of structures using a range of materials including steel, reinforced and/or prestressed concrete, and/or timber. Design of communication systems including roads, railways, ports and airfields, and associated works. Investigation and preparation of feasibility reports. Tasking of associated professions including geomatic, geotechnical and/or environmental investigations. For description of practical experience requirements see Rules governing the award of the degree of Bachelor of Engineering. . Included is a requirement for seminar attendance (equivalent to 8 x 1 hour sessions), including for example research seminars (4), professional meetings (2) and academic seminars on leadership (2).

## **ZACM4260**

### **Engineering Management 2A**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr W Smith

Studies of the modelling project scope. Considerations of requirements engineering, specification design, tender documents and tender evaluation. Contract types and their administration. Procurement management, contract claims and dispute resolution options. Parliament interest in projects and Government financial control.

## **ZACM4261**

### **Engineering Management 2B**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Mr A White

Studies of horizontal construction planning and control. Lightweight vertical construction and design for climate. Construction details and specifications and contract documentation. Design coordination, design visualisation and project coordination information management systems. Occupational health and safety. Expatriate construction projects. Issue of standards, regulation, licensing.

## **ZACM4410**

### **Design 3**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr T Ray

*Prerequisite/s:* ZACM3410

Detail design of systems and subsystems, design as a constructive systematic integrative process. Decision-based design: compromise. Design process planning and management. Communication of design information. Relevant project based domain topics. Major design project covering concept selection to tender.

## **ZACM4411**

### **Design 4**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr T Ray

*Prerequisite/s:* ZACM3410

Design as a forensic, repair activity. Trouble shooting at the machine level, failure analysis. Comparison of alternative designs and assemblies. Design for manufacture and maintenance. Adaptive and variant design.

Code based design and non-code based design. Standards and their use. Example domain topics include: fracture, wear, vibration, joints, human factors.

## **ZACM4430**

### **Turbomachines**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr H Kleine

This course will introduce the working principles of fluid machines such as pumps and turbines and aims at developing an understanding, from a fluid-mechanics point of view, how these devices work. The course will cover various types of turbomachines such as axial turbines, compressors, pumps and fans, as well as radial flow turbines and centrifugal pumps, turbines and compressors.

## **ZACM4450**

### **Mechanical Engineering Project Thesis & Practical Experience**

UC School of Aerospace, Civil and Mechanical Eng

UOC15 HPW8

S1 on-campus, S2 on-campus

*Staff Contact:* Dr R Boyce

The project takes the form of a minor piece of research or investigation, a major feasibility study or design, or a comprehensive literature review. Project management techniques are adopted and assessed in the implementation of the project. Satisfactory completion of the Practical Engineering Experience Requirement, viz. rule 6 of the Rules governing the award of the degree of Bachelor of Engineering.

## **ZACM4900**

### **Acoustic Noise**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* Prof J Lai

Physical acoustics: The wave equation, solution of the wave equation, comparison with vibration having finite degrees of freedom. Sound: sound pressure level, psychological response to sound, threshold of hearing and threshold of pain, maximum permissible levels of sound exposure. Noise attenuation and control. Noise: statistical properties of noise, response of systems to noise, correlation functions and transfer, frequency response functions. Machinery noise: generation of vibration in machines, acceptable levels and methods of control. Radiation of sound from vibrating machinery.

**ZACM4901****Advanced Design**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

Overview of current design science research. Concurrent engineering, systems engineering. Design as a multidisciplinary activity. Mathematical modelling in design. Design space exploration and representation. Optimisation theory and practice in design. Artificial intelligence/expert systems. Taguchi methods for robust design. Cost/benefit trade studies, design decision making.

**ZACM4902****Aeroelasticity**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

Review theory of vibration. Application of vibration analysis to structures. Examine the forces on an aircraft, the accompanying motion and response of the structure. Develop aeroelasticity phenomenon theories.

**ZACM4903****Analysis of Structural Vibration**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

Vibration analysis through experiment and simulation: review of basic linear structural vibration theory, lumped parameter formulation of vibration problems in matrix equations, theory and practice of experimental modal testing, finite element modelling of structural vibrations.

**ZACM4904****Applied Optics**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S1 on-campus

*Staff Contact:* Dr H Kleine

The first part of the course will cover the basic principles of imaging and the functions of basic elements. In the subsequent parts, different types of the most frequently used measurement techniques will be introduced. Density-sensitive methods such as shadow, schlieren, and interferometry techniques (including holographic interferometry) will be discussed in great details, followed by an introduction of laser-based diagnostics such as Planar Laser Induced Fluorescence (PLIF). In the final part, methods that rely mostly on post-processing of optical records, such as Particle Image Velocimetry (PIV) and Speckle Photography will be described.

This course is strongly recommended to all students pursuing a thesis with optical measurement techniques content.

**ZACM4905****Blast Design**

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC3 HPW2

S1 on-campus

*Staff Contact:* Mr G Barker

History of explosives use in engineering. Studies of types and properties of explosives, initiation systems, quantity distance procedures. Quarry blasting and explosive demolition. Blast waves and interactions, blast loads on structures, blast analysis and structural design. Survivability of structures.

**ZACM4906****Blast and Dynamic Analysis**

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC3 HPW2

S2 on-campus

*Staff Contact:* Mr G Horoschun

*Prerequisite/s:* ZACM4905

Use of computer programs to assess external and internal blast loads. Assessment of structures against attack and ground shock. Earthquake analysis and design, wind induced vibrations. Floor vibrations induced by machine and footfall.

**ZACM4907****Chaos and Non-linear Dynamics**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

Linear and non-linear oscillators. Trajectories in phase space. Stability and bifurcation of maps. Strange attractors. Subharmonic cascade. Poincare sections. Fourier spectrum. Lyapunov exponents. Fractal properties. Examples of dynamical chaos and engineering applications.

**ZACM4908****Coastal Engineering**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Prerequisite/s:* ZACM3060

Studies of linear and nonlinear wave theories, wave transformation, wave force, energy and power. Wave prediction, tides, coastal currents and sediment transport. Coastal protection methods. Structures in coastal zone.

#### **ZACM4909**

##### **Composite Mechanics**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* Dr K Shankar

This course will introduce the student to the mathematical treatment of classical laminated plate theory and its application to determination of laminate properties, structural analysis and design of fibre reinforced laminated composite structures.

#### **ZACM4910**

##### **Contaminated Site Investigations and Remediation**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Prerequisite/s:* ZACM3212

Contaminated site regulatory framework in Australia. Preliminary site investigations, landuse history, likely contaminants. Detailed site assessment, drilling, sampling, chemical compatibilities, sampling design and QA/QC. Health and safety management, action levels, personal protective equipment. Site remediation, landfill disposal, bioremediation, separate phase recovery. Advanced methods. Contaminated site excursion.

#### **ZACM4911**

##### **Control Theory**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

*Staff Contact:* Dr A Sreenatha

Analysis and design of control systems using Transfer Function Approach; State Space Analysis, controllability, observability, canonical forms, pole placement, optimal control, observers, Kalman Filters, Lyapunov stability analysis, introduction to digital control.

#### **ZACM4912**

##### **Durability of Concrete and Concrete Structures**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

Factors essential to enhancement of durability of concrete and concrete structures, designing for durability according to macro and micro climatic conditions.

Role of supplementary cementitious materials, superplasticisers, corrosion inhibitors, polymers, fibres and reinforcement treatments in the design of high performance concrete structures. Design and use of high strength lightweight concrete for offshore and gravity structures.

#### **ZACM4913**

##### **Engineering Applications of Computational Fluid Dynamics**

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC3 HPW2

S1 on-campus

*Staff Contact:* Mr J Young

Hands-on introduction to Computational Fluid Dynamics (CFD) using MATLAB and FLUENT. Advantages and disadvantages of CFD as an engineering tool. Various types of flows (steady/unsteady, laminar/turbulent, subsonic/supersonic, incompressible/compressible, inviscid/viscous), effect of solution strategies and boundary conditions. Panel methods, finite difference methods. Sources and effects of numerical error. Numerical stability. Grid generation.

#### **ZACM4914**

##### **Foundations for Light Structures**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

Design considerations of foundations for light structures. Shrink-swell behaviour of reactive soils. Slab foundations on reactive soils. Foundations subject to uplift. Foundations on soft soil.

#### **ZACM4915**

##### **Geosynthetics**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

*Staff Contact/s:* A/Prof Lo and Dr C Gnanendran

*Prerequisite/s:* ZACM3222

Use of geosynthetics (ie geotextiles, geogrids, geocomposites and geomembranes) in geotechnical and geo-environmental engineering practice. Properties and test methods for geosynthetics functions and mechanisms, designing for separation, filtration, drainage and reinforcement. Introduction to design and construction of reinforced soil structures.

**ZACM4916****Impact Mechanics**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

One-dimensional elastic stress waves in long uniform rods, theory and applications. Plane impulsive motion of rigid bodies and structures. Impact of a solid on to a liquid surface, ricochet. Liquid impact against a rigid surface, lined cavity charge explosives. Elastic-plastic stress waves in bars. High speed forming. Hyper-velocity impact.

**ZACM4917****Marine Engineering**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

Ship Propulsion and Platforms.

**ZACM4918****Missile Design**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

*Staff Contact:* Dr J Milthorpe

Aerodynamics and dynamics of slender bodies and wings. Spin and fin stabilisation of projectiles, trajectories and manoeuvre capabilities. Layout, structure, control, propulsion and their integration with other systems.

**ZACM4919****Naval Architecture**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

Introduction to the principles of naval architecture. Ship design process. Types of vessels. Flotation and trim. Hull form generation. Transverse stability and subdivision. Ship structures. Resistance and powering. Propulsors. Ocean climate. Ship motions. Manoeuvrability and Control. Weight estimation.

**ZACM4920****Non-Destructive Inspection**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S1 on-campus

*Staff Contact:* Dr K Shankar

Introduction to the theory and application of major non destructive techniques employed for inspection of structural components in the aircraft industry. Use of NDI in manufacturing and in maintenance. Familiarisation with practice of NDI techniques.

**ZACM4921****Occasional Elective 1**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S1 on-campus

*Staff Contact:* Dr R Boyce

The syllabus may change from one occasion to the next, allowing the presentation of a modern topic by a visiting academic of eminence or a special lecture course on a trial basis.

**ZACM4922****Occasional Elective 2**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

The syllabus may change from one occasion to the next, allowing the presentation of a modern topic by a visiting academic of eminence or a special lecture course on a trial basis.

**ZACM4923****Orbital Mechanics**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

A vector mechanical two-body treatment of ballistic missile and spacecraft trajectories. Orbital determination of in plane and out of plane orbital changes. Position and velocity as a function of time and rendezvous. Vehicle accuracy and launch errors.

**ZACM4924****Prestressed Concrete**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

Principles of prestressed concrete, material properties, methods of prestressing, flexural behaviour. Full and partial prestressing. Design of beams for serviceability. Deflections. Cable profiles.

**ZACM4925****Rapid Action Repair**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

Define the principles and requirements of rapid action repair. Review aircraft structural design analysis methods and damage assessment techniques. Develop repair design schemes to structures and systems based on technician skills and the availability of materials and equipment. Determine repair application methods.

**ZACM4926****Risk Analysis**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Prerequisite/s:* ZACM3060

The study of risks and hazards. Use of probability and statistics. Assessment of uncertainties and the use of reliability index and simulation. Applications of risk assessment in decision making and in general engineering.

**ZACM4927****Rotary Wing 2**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* Mr M Garratt

*Prerequisite/s:* ZACM3032

Dynamics of rotor blade motions and control. Blade flapping motion. Blade lagging motion. Rotor blade design considerations. Configurations, rotor types, types of helicopter control. Conventional helicopter. Tilt rotor. Performance - hover and vertical flight, forward flight and climbing forward flight. Trim, stability and control. Aerodynamics design considerations. Engine performance. Winged and tandem rotor helicopter performance.

**ZACM4928****Rotary Wing 3**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

*Staff Contact:* Dr J Milthorpe

*Prerequisite/s:* ZACM4927

Stability and control of rotor blade motion. Control power and sensitivity. Response to control inputs. Gust response. Transition to autorotation in forward flight.

**ZACM4929****Structural Joining Methods**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Corequisite/s:* ZACM2021 and ZACM2022

Theory of load transferring structural joints. Detailed analysis of mechanically fastened, welded and adhesively bonded joints. Joint design, fundamentals and practices. Joint structural analysis. Durability and environmental effects.

**SCHOOL OF BUSINESS****ZBUS1101****Organisational Behaviour**

UC School of Business

UOC6 HPW4

S2 on-campus

*Staff Contact:* Dr J Warn

The course introduces explanations of individual and group behaviour in the organisational setting and examines organisational processes. Drawing on the organisational setting, it seeks to build an understanding of how concepts maybe organized into models and theories and uses a case study approach to show how such models may be applied to managerial practice, thus reinforcing work in the integrating core of the degree. Specific areas of study may include, at an introductory level, perception, motivation and stress; team effectiveness, decision-making, power and conflict, and leadership; and organisational structure, design, culture and change.

**ZBUS1102****Introduction to Economics**

UC School of Business

UOC6 HPW4

S2 on-campus

*Staff Contact:* Mrs S Jackson

The course introduces the main principles of economics and briefly reviews the development of ideas in the discipline. It provides a foundation understanding of the economic environment in which organisations conduct business with particular reference to market forces, international trade and the role of government. Building on work in the integrating core, students will learn how economics models individual, firm and social behaviour, and how economic thinking has changed. Specific topics for study include individual and market demand; opportunity cost, profit and supply; price determination; comparative advantage and trade; an overview of the macroeconomy; and the economic impact of government.

**ZBUS1103****Introduction to Accounting and Finance**

UC School of Business

UOC6 HPW4

S1 on-campus

*Staff Contact:* Dr F Miley

The course provides the foundations for understanding how financial data are captured by accounting systems and basic tools of financial analysis. Both corporate and government accounting systems are considered, which, together with a presentation of essential accounting concepts, provide a valuable foundation for work in economics as well as general business. Topics covered include financial statements and their elements, records of transaction processing, cash versus accrual accounting, national income and balance of payments accounts and discounted cash flow analysis. Tools covered in the integrating core are applied.

**ZBUS1104****Integrating Core 1 - Business Research and Statistics**

UC School of Business

UOC6 HPW4

S1 on-campus

*Staff Contact:* Dr J Hanson

The course is the first of three, one at each level, comprising the Integrating Core in the degree. This three-course spine aims to systematically develop questioning, thinking and problem-solving skills in a way designed to be of particular relevance in business environments. Integrating Core 1 aims first to set the scene for the whole degree, providing students with perspectives and an overview of what a good tertiary education in business should achieve. It then shows students how to understand, frame and model problems, to express themselves effectively in writing, and to develop a basic competence in quantitative analysis. Its purpose is to create generic intellectual skills which may be applied to enhance understanding and performance in other courses in the degree. Students work together on some assignments to develop team skills.

**ZBUS2001****Quantitative Methods in Economics and Management**

UC School of Business

UOC6 HPW4

S1 on-campus

*Staff Contact:* Mrs S Jackson*Prerequisite/s:* ZBUS1101 or ZBUS1102*Prerequisite/Corequisite:* ZBUS1103

This course introduces students to quantitative methods, particularly statistical methods, as used in economics and management, and to the sources and quantitative and statistical uses of economic and managerial data. Stress is placed on understanding and applications of concepts, and no mathematical pre-requisite is required.

Note: This course is reserved for BA & BSc students only.

**ZBUS2101****Business Law**

UC School of Business

UOC6 HPW4

S1 on-campus

*Staff Contact:* Mr G Lea

*Prerequisites/Corequisites:* For BBus students, any 3 Foundation Core courses

*Prerequisite/s:* For BA/BSc students: ZBUS1101*Prerequisite/Co-requisite:* For BA/BSc students: ZBUS 1103

This course aims to provide a general understanding of legal processes and public law, and gives particular emphasis to introducing contract law. The purpose of the course is to equip students with sufficient understanding of the legal system and contract law to work effectively in the acquisition and procurement processes of large organisations (including Defence) and to understand the legal underpinnings and implications of business decisions. Acquiring a basic understanding of the legal approach to argument reinforces work in the integrating core to develop a questioning mind equipped to engage effectively in problem-solving activities.

**ZBUS2102****Project Management**

UC School of Business

UOC6 HPW4

S1 on-campus

*Staff Contact:* Ms E Barber

*Prerequisite/s:* For BBus students, any 3 Foundation Core courses

*Prerequisite/s:* For BA/BSc students: ZBUS1101*Prerequisite/Co-requisite:* For BA/BSc students: ZBUS1103

This course identifies the components of project management and its associated management tools and procedures. Topics covered may include: project selection, project environment, initiation and organization, planning and overview modelling, scheduling, budgeting, resource allocations, risk management, communication and monitoring, control and evaluation, reporting, auditing and project termination.

**ZBUS2103****Human Resource Management**

UC School of Business

UOC6 HPW4

S2 on-campus

*Staff Contact:* Mr P May

*Prerequisite/s:* For BBus students, any 3 Foundation Core courses, including ZBUS1101

*Prerequisite/s:* For BA/BSc students: ZBUS1101*Prerequisites/Co-requisites:* For BA/BSc students: ZBUS 1103



This course introduces students to the theory and practice of Human Resource Management. It examines, as an important aspect of the management function, the management of people in the work place.

#### **ZBUS2104**

##### **Integrating Core 2 - Evidence Based Decision Making**

UC School of Business

Enrolment requires School approval

UOC6 HPW4

S1 on-campus

*Staff Contact:* Dr J Hanson

*Prerequisite/s:* Enrolled in BBus Program 4405 and ZBUS1104

This course focuses on decision-making and problem-solving, and analytical tools valuable in addressing questions which students learned to formulate in ZBUS1104 *Integrating Core 1*. The questions, problems and decisions are set up to be of particular relevance to a business and organisational environment and group exercises may be used to build team learning skills.

#### **ZBUS2200**

##### **Production, Prices and Trade**

UC School of Business

UOC6 HPW4

S1 on-campus

*Staff Contact:* Dr T Huybers

*Prerequisite/s:* For BBus students, any 3 Foundation Core including ZBUS1102

*Prerequisite/s:* For BA/BSc students: ZBUS1102

*Prerequisite/Co-requisite:* For BA/BSc students: ZBUS1103

This course covers the foundations of modern microeconomic theory at an intermediate level and applies the principles and analytical framework of modern microeconomics to international trade.

#### **ZBUS2202**

##### **Growth and Fluctuations in Open Economies**

UC School of Business

UOC6 HPW4

S2 on-campus

*Staff Contact:* Dr J Seo

*Prerequisite/s:* ZBUS2200

This course covers the foundations of modern, open-economy macroeconomic theory and policy at an intermediate level.

#### **ZBUS2203**

##### **The Making of Economic Policy**

UC School of Business

UOC6 HPW4

S2 on-campus

*Staff Contact:* Dr P Oslington

*Prerequisite/s:* ZBUS2200

This course deals with the process of economic policy making and analyses the rationales for, and implications of, economic policies in open economies. Topics covered may include rationales for government activity and intervention; critiques of the size and economic role of government; public versus private ownership, production and provision; regulation and deregulation; competition and industry policy; implications of economic policy for economic welfare, and for security, defence and defence industry.

#### **ZBUS2204**

##### **Asia-Pacific Economic Development**

UC School of Business

UOC6 HPW4

S1 on-campus

*Staff Contact:* Dr J Seo

*Prerequisite/s:* ZBUS2200

This course offers analysis of the process of economic development illustrated by case studies from the experience of selected East Asian and Pacific countries. Topics covered may include capital formation and skill building; financial linkages and liberalisation; international trade and investment; institution building and transformation; industrialisation and trade; the role of economic policy.

#### **ZBUS2205**

##### **Applied Economics**

UC School of Business

UOC6 HPW4

S1 on-campus

*Staff Contact:* Dr K Sharpe

*Prerequisite/s:* ZBUS2200

This course offers the opportunity for students to explore how recent developments in economic analysis can be brought to bear on intra- and inter-organisational issues. It explains the strategic behaviour of people and organisations in a variety of contexts, using the tools of applied game theory and information economics. The emphasis of the course is on clear conceptual thinking and useful, relevant applications rather than technical analysis. The course aims to make students conversant with the principles of strategic thinking, allowing them to explain the strategic behaviour of people and organisations and apply strategic principles to their own decision making.

**ZBUS2301****Management Accounting**

UC School of Business

UOC6 HPW4

S2 on-campus

*Staff Contact:* Dr F Miley*Prerequisite/s:* For BBus students, any 3 Foundation Core courses including ZBUS1103*Prerequisite/s:* For BA/BSc students: ZBUS1101 and ZBUS1103

The course develops an understanding of management accounting with a view to equipping students with the ability to address costing and budgeting issues in a complex organisational environment. Acquisition of the tools of management accounting is presented as a means of assisting in the effective and efficient control of organisational resources. Management accounting is compared and contrasted with financial accounting; a range of conceptual and measurement issues around costing is explored; various approaches to budgeting are considered; the impact of human factors is addressed; and methods of managing quantities (for example in inventories) are presented.

**ZBUS2302****Leadership**

UC School of Business

UOC6 HPW4

S1 on-campus

*Staff Contact:* Assoc Prof I Densten*Prerequisite/s:* For BBus students, any 3 Foundation Core courses including ZBUS1101*Prerequisite/s:* For BA/BSc students: ZBUS1101*Prerequisite/Corequisite:* For BA/BAS students: ZBUS1103

This course considers leadership as a management activity and provides a critical analysis of the assumption underlying the concept of leadership. The course provides a conceptual integration of students' previous leadership experiences with leadership theory and research. Both simple and complex organisations are examined. Topics covered may include: approaches to leadership; leadership skills (interpersonal skills, self-management, negotiation, networking); power and authority; rules, sanctions and incentives; inner values; ethics; gender differences (women in organisations); leadership development and training

**ZBUS2303****Logistics Management**

UC School of Business

UOC6 HPW4

S2 on-campus

*Staff Contact:* Mr E Antoniak*Prerequisite/s:* For BBus students, any 3 Foundation Core courses*Prerequisite/s:* For BA/BSc students: ZBUS1101*Prerequisite/Co-requisite:* For BA/BSc students: ZBUS1103

This course examines and applies management tools and principles to supply and distribution problems associated with the flow of materials and products through organisations and the supply chain to the end customer.

**ZBUS2401****Finance**

UC School of Business

UOC6 HPW4

S2 on-campus

*Staff Contact:* Dr G Manger*Prerequisite/s:* For BBus students, all 4 Foundation Core courses*Prerequisite/s:* For BA/BSc students: ZBUS1101 or ZBUS1102 and ZBUS 1103

This course deals with investment evaluation and finance. Standard investment appraisal techniques are introduced, and a range of issues in financial analysis are covered. Topics covered may include evaluation under conditions of risk and uncertainty for public and private enterprises. Financial topics covered include standard techniques such as discounted cash flow, financial statement analysis, capital asset pricing, security evaluation, optimal capital structure, and sources of capital from financial institutions in Australia.

**ZBUS2801****Leadership and Management**

UC School of Business

UOC6 HPW4

S2 on-campus

*Staff Contact:* Dr J Warn*Prerequisite/s:* 36 units of credit at Level 1*Exclusion/s:* BBus Program

This course offers an introduction to management and leadership principles to provide a common career foundation in these areas for all undergraduate students of the College. The course is divided into two components, management and leadership, and students may take either separately (each worth 3UOC) or both (6UOC). The management component covers the core elements of organisational behaviour at individual, group and organisational levels, and the essentials of managing human resources, projects and corporate strategy.

In the leadership component, leaders of all kinds are studied from a variety of perspectives: as visionaries, social architects, relationship builders, and agents of change and transformation. Leaders' effectiveness is linked to personal characteristics including charisma, emotional intelligence and courage.

### **ZBUS2802**

#### **Leadership and Management (Leadership)**

UC School of Business

Enrolment requires School approval

UOC3 HPW4

S2 on-campus

*Staff Contact:* Dr J Warn

*Prerequisite/s:* 36 units of credit at Level 1

*Exclusion/s:* BBus Program

This course comprises the leadership component of ZBUS2801 *Leadership and Management*. This course is taught in the second half of the session.

### **ZBUS2803**

#### **Leadership and Management (Management)**

UC School of Business

Enrolment requires School approval

UOC3 HPW4

S2 on-campus

*Staff Contact:* Dr J Warn

*Prerequisite/s:* 36 units of credit at Level 1

*Exclusion/s:* BBus Program

This course comprises the management component of ZBUS2801 *Leadership and Management*. This course is taught in the first half of the session.

### **ZBUS3104**

#### **Integrating Core 3 - Organisation Theory and Management**

UC School of Business

UOC6 HPW4

S2 on-campus

*Staff Contact:* Dr J Hanson

*Prerequisite/s:* ZBUS2104

This course builds on skills of problem definition, analysis and decision-making developed in Integrating Core 1 and 2 to show how solutions might be implemented in business and organisational settings. An emphasis on decision-taking is carried through from Integrating Core 2 and earlier work on analysis is applied to learning to evaluate potential and actual outcomes. Study in this course draws on theories of leadership, negotiation, organisational change and strategy. It considers the formulation and application of business strategy and its implementation in an environment of continuous change.

*Note/s:* This course is reserved for BBus students only and is taught in the first half of the session.

### **ZBUS4201**

#### **Economics 4 (Honours) Full-Time**

UC School of Business

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* Prof P Hall

Candidates are required to produce a thesis of about 15,000 words on a topic chosen in consultation with the Head of School from areas in which the School has relevant supervision expertise. They also undertake coursework related to the research process and the subject area in which the research topic falls. The thesis attracts 75% of the mark for the year and coursework 25%.

### **ZBUS4202**

#### **Economics 4 (Honours) Part-Time**

UC School of Business

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Prof P Hall

Content requirements are the same as for full-time Honours but students may take longer than one year to complete the program.

### **ZBUS4203**

#### **Economics 4 (Combined Honours) Full-Time**

UC School of Business

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* Prof P Hall

In the Combined Honours program candidates are required to present a thesis or research project on a topic that is concerned with Economics and the interests of the other School involved, the thesis or project being supervised and examined by the two Schools conjointly. In addition, candidates are required to complete coursework as approved by the Head of School.

### **ZBUS4204**

#### **Economics 4 (Combined Honours) Part-Time**

UC School of Business

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Prof P Hall

In the Combined Honours program candidates are required to present a thesis or research project on a topic that is concerned with Economics and the interests of the other School involved, the thesis or project being supervised and examined by the two Schools. In addition, candidates are required to complete coursework as approved by the Head of School.

**ZBUS4301****Management 4 (Honours) Full-Time**

UC School of Business

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* Prof P Hall

Candidates are required to produce a thesis of about 15,000 words on a topic chosen in consultation with the Head of School from areas in which the School has relevant supervision expertise. They also undertake coursework related to the research process and the subject area in which the research topic falls. The thesis attracts 75% of the mark for the year and coursework 25%.

**ZBUS4302****Management 4 (Honours) Part-Time**

UC School of Business

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Prof P Hall

Content requirements are the same as for full-time Honours but students may take longer than one year to complete the program.

**ZBUS4303****Management 4 (Combined Honours) Full-Time**

UC School of Business

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* Prof P Hall

In the Combined Honours program candidates are required to present a thesis or research project on a topic that is concerned with Management and the interests of the other School involved, the thesis or project being supervised and examined by the two Schools conjointly. In addition, candidates are required to complete coursework as approved by the Head of School.

**ZBUS4304****Management 4 (Combined Honours) Part-Time**

UC School of Business

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Prof P Hall

In the Combined Honours program candidates are required to present a thesis or research project on a topic that is concerned with Management and the interests of the other School involved, the thesis or project being supervised and examined by the two Schools conjointly. In addition, candidates are required to complete coursework as approved by the Head of School.

**GENERAL EDUCATION COURSES****ZGEN2001****Engineering the Environment**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

*Staff Contact:* Dr R Niven*Prerequisite/s:* Enrolment in program 4400 or 4410

Since prehistoric times humans have endeavoured to improve their lot by changing the natural environment - river courses have been altered, mountains moved, seas turned to land. The course will examine the benefits and effects of major engineering activity. Topics will be selected from civil engineering marvels of the ancient world, including engineering disasters, impact of public health engineering, the political power of water, protecting the coast, power generation, mechanisation and agriculture and developments in materials and technology.

**ZGEN2002****The Cockpit and Beyond**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

*Staff Contact:* Ms S Burdekin

An introduction to aviation as a system -the aircraft, aircrew, flying operations and air traffic management as major components of the aviation system. Aircraft components and function, flight mechanics and handling. Aviation human performance limitations and an introduction to systemic safety issues involving aircraft accident case studies.

**ZGEN2003****The History and Science of Flight**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S1 on-campus

*Staff Contact:* Mr R Lewis

Today most passengers take aircraft for granted. Outside the aircraft, only metres from where they sit, a battle rages between thrust, drag, lift and gravity as the rarefied atmosphere races over wings at 800 km/h. Cocooned from this battle, inside an airconditioned, soundproofed fuselage, the passengers are preoccupied by the quality of food and the in-flight movie; some have even pulled down window shades so that they are not disturbed by the outside world. The aim of this course is to create within its audience, an appetite to understand how and why modern aircraft fly with such grace and apparent ease. To achieve that aim the class will look at the blood, sweat, tears, science and engineering that have led to the evolution of the modern aircraft. After taking this course, you will never again lower the window shade.....

**ZGEN2201****Australian Literature and Film**

UC School of Humanities and Social Sciences

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* Mr J Doyle

A comparative study of recent and contemporary Australian literature and film.

**ZGEN2203****Creative Writing and the Media**

UC School of Humanities and Social Sciences

UOC3 HPW2

S1 on-campus

*Staff Contact:* School Office

*Prerequisite/s:* Enrolment in program 4405 or 4410 or 4421 or 4422 or 4423 or 4424 or 4425 or 4430 or 4431 or 4432 or 4433 or 4435 or 4436 or 4437.

This course is to increase your skills in the writing of vivid, effective prose and to improve your critical thinking about reading and writing. Topics are chosen from such areas as writing for the print and non-print media (including sports writing), television and film, journalism, autobiography and other forms of prose writing.

**ZGEN2204****Issues in Modern Australian Literature and Film**

UC School of Humanities and Social Sciences

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

No course description available.

**ZGEN2210****Terrorism and the International Order: Past, Present and Future**

UC School of Humanities and Social Sciences

UOC3 HPW2

S2 on-campus

*Staff Contact:* School Office

*Prerequisite/s:* Enrolment in program 4405 or 4410 or 4421 or 4422 or 4423 or 4424 or 4425 or 4430 or 4431 or 4432 or 4433 or 4435 or 4436 or 4437.

This course takes as its starting point the events of September 11, 2001 and proceeds to analyse a number of issues thrown up by those events. What is terrorism and has it been changed by September 11? How has September 11 affected the international order? How should liberal democracies deal with terrorism while maintaining their basic freedoms? Can the international system and international law be re-shaped better to deal with such events? Utilizing a range of media and teaching resources

this course will examine contemporary and historical terrorism and counter-terrorism in order to address these and related issues.

**ZGEN2220****Introduction to Strategic and Security Studies**

UC School of Humanities and Social Sciences

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

No course description available.

**ZGEN2230****Australia in the Twentieth Century**

UC School of Humanities and Social Sciences

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* Dr F Cain

This course will analyse the social, political, cultural and economic forces that have determined twentieth-century Australian history. It will examine the impact of important events on Australia such as Australian Federalism, reactions to the Great War, Federal-State financial relationships, the Great Depression, the Second World War, the Australian film industry, women in Australia, the economic boom of post World War 2 and the Whitlam, Hawke and Keating years.

**ZGEN2231****An Introduction to Australian Military History**

UC School of Humanities and Social Sciences

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Prerequisite/s:* Enrolment in program 4405 or 4410 or 4421 or 4422 or 4423 or 4424 or 4425 or 4430 or 4431 or 4432 or 4433 or 4435 or 4436 or 4437.

This course provides an introduction to Australian military history. It considers the 19th century origins of the Australian military, the involvement of defence policy, and the ways in which that history has been presented and interpreted by historians, film-makers and mythologies

**ZGEN2240****Introduction to Ethics**

UC School of Humanities and Social Science

UOC3 HPW2

S1 on-campus

*Staff Contact:* Dr P Oslington

*Prerequisite/s:* Enrolment in program 4400 or 4405 or 4410 or 4421 or 4422 or 4423 or 4424 or 4425 or 4430 or 4431 or 4432 or 4433 or 4435 or 4436 or 4437.

A changing military environment and developments in wider society combine to make new and increasingly complex ethical demands on Australian Defence Force officers. This course introduces students to ethical theory and debate, develops skills in applying ethics, and analyses various forms of ethical discourse. A novel, film or play will be chosen each year as a stimulus to class discussion. A number of issues will be considered from military and other contexts. Studying ethics may not make you a better person, but it will encourage self-awareness, clarity, and ability to engage in ethical dialogue with others inside and outside the military.

**ZGEN2241****Why Politics Matters**

UC School of Humanities and Social Sciences

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Prerequisite/s:* Enrolment in program 4405 or 4410 or 4421 or 4422 or 4423 or 4424 or 4425 or 4430 or 4431 or 4432 or 4433 or 4435 or 4436 or 4437.

This course will explore the impacts of politics upon our everyday lives as we go about our business as citizens, as members of the ADF, and as professional scientists and engineers. What are our political obligations as citizens, and can we trust politicians? How is defence policy made? Why does government regulation of professional activities constantly increase? Students will thus be introduced in a practical way to the mechanics, limitations and frustrations of the Australian political system.

**ZGEN2242****Understanding Indonesia: Stories of nation and stories of dissent**

UC School of Humanities and Social Sciences

UOC3 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Mr P Tickell

This subject introduces the major stories of the Indonesian nation and how these stories inform elements of Indonesian national identity. Films, short-stories, extracts of novels are the courses raw materials and will explore such themes as: the anti-colonial struggle; war, revolution and national liberation; the 1965 coup, Indonesian communism, the Army and 'national salvation'; poverty; ethnicity, racism and the 'problem' of the Chinese; controlling Islam; domesticating and controlling women. The subject also explores what is silenced and marginalised by these dominant stories, e.g. the various separatisms that occurred in Indonesia since 1945.

**ZGEN2301****Computer Games**

UC Information Technology and Electrical Engineering

UOC3 HPW2

S2 on-campus

*Staff Contact:* Dr M Barlow

This course is available to students undertaking an Arts, Business or Engineering degree. Computer Games are a multi-billion dollar industry - larger than the Hollywood film industry in revenue. Modern computer games are also sophisticated software products delivered by large teams of technical experts. The course uses computer games as a lens on many of the major topics in computer science. Those topics include 3D graphics, artificial intelligence, networking, user interfaces, simulation, and hardware (eg the consoles). Further, the course addresses "serious games" - the use of games for education, training and experimentation, particularly by the military. Practical work will include the focussed play and evaluation of a number of games, together with content creation for games.

**ZGEN2302****The E-Warrior**

UC Information Technology and Electrical Engineering

UOC3 HPW2

S2 on-campus

*Staff Contact:* Mr M Ford

This course is available to students undertaking a Business, Engineering or Science degree. Information Technology (IT) influences every aspect of modern warfare. This subject aims to familiarise students with the role that IT plays in modern warfare. Topics include: introduction to command and control, concepts in military operations, modern battlefield technologies, the role of IT in military training and analysis, and challenges arising from the use of such technologies on the modern battlefield.

**ZGEN2303****Tactical Combat Radio Systems**

UC Information Technology and Electrical Engineering

UOC3 HPW2

S1 on-campus

*Staff Contact:* Prof J Arnold

This course, which is available to students undertaking an Arts, Business or Science degree, assumes no prior knowledge of electronics and uses only a minimum of mathematics. Reliable and secure communications is a necessity in any successful military operation. The military history books are filled with examples of major operations failing because of a breakdown in communications. A tactical combat radio system, such as the Army's RAVEN system, is much more than just a ruggedised version of a civilian two-way radio. It is required to operate in a hostile environment where the enemy will try to intercept and disrupt radio communications and deny the field commander the co-ordination of the available forces.

Both technical and operational measures need to be employed that minimise the likelihood of enemy detection and that allow information to be transferred in spite of enemy jamming. In this course the basic principles of telegraphy, telephony and radio communications will be covered with an emphasis on communications in a hostile environment. The mode of operation of the RAVEN HF and VHF sets will be described along with an introduction to secure communications techniques including encryption, frequency hopping and spread spectrum modulation. Operational procedures designed to minimise the interception of friendly transmissions or reduce the effectiveness of enemy jamming by the use of directional antennas, control of transmitter power and the use of advanced digital techniques will be discussed. Communications is of prime importance to personnel at all levels in all three services. Whilst it is unlikely that you will be called upon to operate a combat radio in your service career it is certain that you will be in command of those that do. This course will provide an insight into the concepts and capabilities of such a radio system.

#### ZGEN2304

##### Web Sites and Multimedia

UC Information Technology and Electrical Engineering  
UOC3 HPW2

S1 on-campus

*Staff Contact:* Mr T Turner

This course is available to students undertaking an Arts, Business or Engineering degree. Students will be guided in developing the skills to create simple web pages, digital animation, and to digitally manipulate sound and video. These skills will be reinforced through the assessable production of a web site that hosts a digital animation and a digital video created by the students. All software used in the course is available free and so students can continue developing their skills long after the course is complete.

#### ZGEN2400

##### Chemical and Biological Warfare: Defence and Disarmament

UC Physical, Environmental and Mathematical Sciences  
UOC3 HPW2

S1 on-campus

*Staff Contact:* Assoc Prof G Collins

*Prerequisite/s:* Enrolment in program 4400 or 4405 or 4421 or 4422 or 4423 or 4424 or 4425 or 4430 or 4436 or 4437 or 4441 or 4442 or 4443 or 4445.

This course examines the issues of chemical and biological warfare. These include the modes of action and toxicology of chemical and biological weapons and measures for defence against them. It also examines issues relating to the international disarmament treaties banning such weapons such as the Chemical Weapons Convention of 1997 and the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (BTWC) of 1972.

The course includes the examination of case studies where important social and medical issues have arisen through the inappropriate control of chemical weapons.

#### ZGEN2401

##### Astronomy

UC Physical, Environmental and Mathematical Sciences  
UOC3 HPW2

S2 on-campus

*Staff Contact:* Dr G Robinson

*Prerequisite/s:* Enrolment in program 4400 or 4405 or 4421 or 4422 or 4423 or 4424 or 4425 or 4430 or 4437 or 4441 or 4442 or 4443 or 4445.

The first half of this course looks at the Solar System, combining historical observations with results from recent planetary and cometary probes. After studying the powerhouse of the Solar System, the Sun, we examine the terrestrial planets, then the outer ice and gas giants and then the debris of the Solar System - comets, meteorites and asteroids.

Finally we try to fit all these objects in with current theories on the Solar Systems formation and evolution and with the recent discoveries of planets around other stars. In the second half of the course we learn how a star is formed, its life and its eventual demise. This includes a study of the characteristics of white dwarfs, neutron stars and black holes. Next we see the place of the Sun in the Milky Way and compare our galaxy with other types of galaxies. Finally, we consider current cosmological theories about the beginning of the Universe, the Big Bang, and try to see where we fit into the grand scheme of the cosmos and with other possible life forms.

#### ZGEN2402

##### Introductory Meteorology

UC Physical, Environmental and Mathematical Sciences  
UOC3 HPW2

S1 on-campus

*Staff Contact:* Dr V Drake

*Prerequisite/s:* Enrolment in program 4400 or 4405 or 4421 or 4422 or 4423 or 4424 or 4441 or 4442 or 4443 or 4445.

*Exclusion/s:* ZPEM2506, ZPEM2511, ZPEM2512, ZPEM3527, ZPEM4505

The course will examine the familiar synoptic chart used by weather forecasters, with the twin aims of learning how to interpret and of understand what it represents. Students will learn how the atmosphere changes with altitude, how wind arises, why clouds and precipitation form, and what causes storms. We will examine some specific weather systems, learn to recognize them on charts and see how meteorologists detect and predict them.

**ZGEN2403****Chemistry and Life**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office*Prerequisite/s:* Enrolment in program 4400

How our knowledge of chemistry has developed and its applications to the life sciences. Risk benefit analysis and the various types of laws needed to govern the use of water, pharmaceuticals, fuels and air purity.

Trace-elements in the human body as well as their essentiality and toxicity; organic substances and life; general nutritional needs, including vitamins. The subject also touches on diet, diabetes, cancer and coronary heart disease in relation to health and nutrition; food preservation, storage and transport for the Defence Force; forensic science; and the justice system with particular emphasis on problems of interpretation.

**ZGEN2410****The Marine Environment**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Prerequisite/s:* Enrolment in program 4400 or 4405 or 4421 or 4422 or 4423 or 4424 or 4425 or 4430 or 4436 or 4437 or 4441 or 4442 or 4443 or 4445.

The physical environment of the oceans and its impact on society. A discussion of the structure and motion of the oceans and the interaction with the atmosphere, as well as the ocean's role in weather, climate, and economics.

**ZGEN2411****Marine Resources**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Prerequisite/s:* Enrolment in program 4400 or 4405 or 4421 or 4422 or 4423 or 4424 or 4425 or 4430 or 4436 or 4437 or 4441 or 4442 or 4443 or 4445.

A discussion of resources of the oceans. These include fisheries, fossil fuels, desalination, mariculture and energy sources such as tides, waves and ocean thermal energy. The environmental importance of coastal regions, estuaries and coral reefs. Threats to the marine environment from human activities, marine pollution, overfishing, change in land use and coastal and offshore engineering.

**ZGEN2420****The World of Mathematics**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Prerequisite/s:* Enrolment in program 4400 or 4405 or 4421 or 4422 or 4423 or 4424 or 4425 or 4430 or 4436 or 4437 or 4441 or 4442 or 4443 or 4445.

This course is designed to introduce students to the ideas and use of mathematics, the history of the subject and some of the personalities involved. (Only elementary mathematical ability will be assumed.)

**ZGEN2421****Lies, Damned Lies and Statistics**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* Mrs B Catchpole*Prerequisite/s:* Enrolment in program 4400 or 4405

Mark Twain once said, 'Get your facts first and then you can distort 'em as much as you please'. This course is about how to spot misleading statistics and how to draw correct conclusions from data. It is not a course in doing statistics, but rather in statistical literacy or how to make sure you don't have the wool pulled over your eyes. This is a vital skill because any decision maker, whether corporate manager or military officer, needs to base decisions on statistical information-for example about the reliability of equipment or the effectiveness of new weaponry.

## SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

**ZHSS1101****English 1A: Writing the Present, Imagining the Future**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof S Lever

This course explores contemporary writing and media. Understanding the present and speculation about the future are its dual emphases. You will study science fiction and fantasy, poems, film, newspapers and television. You will learn how to critically evaluate a range of material from the newspaper article and television news, to the essay, the story and the poem. You will develop an appreciation of the accepted conventions associated with each form, and the ways that these conventions organise our understanding of the material and imply different audiences. You will develop your skills in creative and critical writing. The course will include such works as George Orwell's *1984* (book and film), Iain M Banks's *The State of the Art* and an anthology of poems.



**ZHSS1102****English 1B: The Experience of War in Fiction and Film**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* School Office

This course focuses on the various ways that the experience of war has been represented in a range of art forms, including poetry, the play, the novel and film. Works include such classic depictions of war as Shakespeare's *Henry V*, Remarque's *All Quiet on the Western Front*, a selection of poetry from Homer to the present, and classic war films. These works raise important questions about ethics, nationalism, politics and love. You will develop your critical reading skills and your capacity to write analytically about literary texts and film.

**ZHSS1201****History 1A (Conflicts in Context: Aspects of World History 1900-1941)**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr D Blaazer

This course examines the causes, conduct, outcomes, and consequences of some of the major military and civil conflicts of the first half of last century. The course will begin with the imperial conflicts which marked the turn of the century, and will include a study of the First World War and the social and political turmoil which preceded and followed it, before concluding with a study of the early, 'European' phase of the Second World War. Using a range of media, the course will introduce students to skills, problems and intellectual approaches specific to the discipline of history.

**ZHSS1202****History 1B (Conflicts in Context: Aspects of World History 1941 to the Present)**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Dr E Hancock

This course examines the causes, conduct, outcomes and consequences of some of the major military and civil conflicts of the second half of last century. The course will begin with the entry of the USSR and the USA into the Second World War, which established the post-war framework of superpower conflict. After study of post-colonial wars, including Vietnam, we will conclude with an examination of post cold-war conflicts including the Gulf War, former Yugoslavia, and East Timor. Using a range of media, the course will introduce students to skills, problems and intellectual approaches specific to the discipline of history.

**ZHSS1301****Indonesian 1A**

UC School of Humanities and Social Sciences

UOC6 HPW6

S1 on-campus

*Staff Contact:* Dr E Jurriens

This is the first session of a study of elementary Indonesian language and culture. Students are expected to attend at least one contact hour every day for Level 1 Indonesian courses.

**ZHSS1302****Indonesian 1B**

UC School of Humanities and Social Sciences

UOC6 HPW6

S2 on-campus

*Staff Contact:* Dr M Sakai*Prerequisite/s:* AIND1101 or ZHSS1301

This is the second session of elementary Indonesian language and culture. It builds on the entry level course *Indonesian 1A*.

**ZHSS1303****Intermediate Indonesian 1C**

UC School of Humanities and Social Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Mr P Tickell

*Indonesian 1C* is an intermediate level course intended for students with a pass in year 12 Indonesian or its equivalent. The course places emphasis on active oral and written competence in the Indonesian language as well as an understanding of Indonesian cultures and societies. It makes use of a variety of authentic Indonesian written and audio-visual materials.

**ZHSS1304****Intermediate Indonesian 1D**

UC School of Humanities and Social Sciences

UOC6 HPW5

S2 on-campus

*Staff Contact:* Mr P Tickell*Prerequisite/s:* ZHSS1303 or AIND1103

This course is the second-session continuation of *Indonesian 1C* and focuses on active oral and written competence in the Indonesian language, as well as on an understanding of Indonesian cultures and societies.

**ZHSS1401****Politics 1A**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof D Lovell

This course introduces students to the study of politics by focussing on Australian politics at the national level. The course is in three sections. The first explores the nature of politics. The second introduces the major actors and institutions of the Australian political system, including the Constitution and the federal system, the Parliament and the executive, the electoral system, political parties and interest groups. The third section focuses on a number of key issues, both to understand the issues themselves in more depth and to see how they illuminate the operation of the political system.

*Assumed Knowledge:* Year 11 and 12 English or English as a Second Language.

**ZHSS1402****Politics 1B**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Prof J Cotton

This course is designed to introduce students to the study of world politics. It addresses the broad historical context, a range of theoretical perspectives, the core institutions and some critical issues of contemporary world politics. Three themes run through the course. The first concerns the question of agency. What role do states and other actors play in world politics? The second theme asks questions about order and justice. What are the major organising principles and ethical dilemmas of world politics? The third theme relates to questions of change and continuity. What are the enduring features and transformative forces of world politics?

**ZHSS2002****Introduction to Strategic Studies**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus, S2 on-campus

*Staff Contact:* Mr C Stockings

*Prerequisite/s:* 36 units of credit at Level 1

*Exclusion/s:* BBus Program.

Strategy may be defined as the means by which states and other organised groups use force or the threat of force to obtain their objectives. This course introduces students to the main concepts underlying this definition at the theoretical level and by the use of practical examples. Varieties of strategy, conventional armed forces, guerilla forces and terror to achieve aims will be discussed. The place of Australia in the world will be a reference point. The course will also explore the determinants of land, naval, and air strategies and how these strategies have been integrated by various powers over the last century.

**ZHSS2101****The English Renaissance: Literature of the Sixteenth and Seventeenth Century**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Mr J Doyle

*Prerequisite/s:* ZHSS1101 or ZHSS1102

This course focuses on the evolution of literary, dramatic and some cultural works from about 1520 to the 1680s: the literature of the period of Henry VIII; the 'Golden Age' of Elizabeth I; the early Stuarts, James I and Charles I; the Civil War and Commonwealth periods of the mid-seventeenth century; and the Restoration from 1660-1688. The course covers a period of enormous social change and incorporates some fundamental questions about what the past means to us, how we understand the past, and how we read works from the past. It explores works from various social, cultural and theoretical perspectives.

**ZHSS2102****Dream and Disillusionment: Twentieth Century American Literature**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Dr H Neilson

*Prerequisite/s:* ZHSS1101 or ZHSS1102

This course examines works by writers from a variety of ethnic backgrounds including Anglo-American, Native American, African-American, Japanese-American. The question of what it meant to be 'an American' in the twentieth century will be explored from a range of perspectives, against a background of the history, culture and politics of the United States in the twentieth century.

**ZHSS2104****Studies in the Media**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Mr J Doyle

*Prerequisite/s:* ZHSS1101 or ZHSS1102

This course studies some of the theories and practices of communications and media, with an emphasis on the connections between visual and written works and criticism. The course will consist of selected theoretical readings integrated with two or three broad modules of practical analysis chosen from such generic or thematic topics as: 'classic' Hollywood; writing for TV; journalism; news photographs; science fiction; documentaries; the sitcom; sports writing; Asian film; and special studies.

### ZHSS2105

#### Modernism & After

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

Staff Contact: Prof P Eggert

Prerequisite/s: ZHSS1101 or ZHSS1102

This course covers some of the major works of the Modernist period, 1900-1920, and of the further development and reaction that followed it in the 1920's and 1930's. The literary works on the course are read against a background of preceding and contemporary literary, political and artistic movements.

### ZHSS2106

#### The Century's Corpse

UC School of Humanities and Social Sciences

UOC6 HPW5

S1 on-campus

Staff Contact: Prof P Eggert

This course explores a number of themes through a study of novels and non-fiction prose from the last two decades of the nineteenth century: horror as a response to modern city life, the advent of Freudian psychology, the 'woman question' (late nineteenth-century feminism), and the emergence of detective fiction.

### ZHSS2108

#### American Renaissance and After

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

Staff Contact: Dr H Neilson

Prerequisite/s: ZHSS1101 or ZHSS1102

This course is designed to familiarize students with some of the most significant and influential authors and works of American literature of the nineteenth century. The course will enhance students' knowledge of the history, culture and politics of the United States in the nineteenth century.

### ZHSS2109

#### Romanticism and Revolution

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

Staff Contact: School Office

Prerequisite/s: ZHSS1101 or ZHSS1102

This course is a study of Romanticism which selects from the works of such poets as Blake, Wordsworth, Coleridge, Byron and Keats, and also prose works that might include works of American Romanticism, the Gothic novel, the writings of Mary Shelley, Dorothy Wordsworth and the Brontë sisters. The course will consider the development of Romantic ideas and aesthetics in relation to the social and political upheavals of the period.

### ZHSS2110

#### Modern Drama

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

Staff Contact: Prof P Eggert

Prerequisite/s: ZHSS1101 or ZHSS1102

Beginning with the modern revival drama in the late nineteenth century, this course investigates some of the most significant approaches to stage drama up to the present time. Examples of naturalism, realism, anti-realism, absurdist drama and political drama will be included. Students will be encouraged to think about performance aspects of the works studied.

### ZHSS2111

#### Australian War Literature

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

Staff Contact: Mr J Doyle

Prerequisite/s: ZHSS1101 or ZHSS1102

This course comprises a study of various works, including novels, poetry, personal memoirs and films which focus on the depiction of warfare in Australian society. Themes explored include the mythology of ANZAC, representations of the soldier, of the enemy and of violence, together with the place of love and mateship in war.

### ZHSS2112

#### Creative Writing and Reading

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

Staff Contact: Dr K Barnes

Prerequisite/s: ZHSS1101 or ZHSS1102

This course begins with a detailed examination of the formal aspects of poetry, using the set anthologies. Students will examine the constraints and freedoms of poetic form and undertake the task of writing poetry in a range of forms. The course will consider the distinctions between poetry and prose before moving to study the problems inherent in storymaking. Examples of narrative style will be examined and the final part of the course will focus on the work of contemporary short fiction writers. Students will write several stories of their own in order to develop their understanding of narrative technique.

**ZHSS2116****Australian Drama, Film and Television**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof S Lever*Prerequisite/s:* ZHSS1101 or ZHSS1102

This course examines contemporary Australian stage drama and its relationship to Australian film and television drama. It begins with the postwar period, reads works from the beginning of television transmissions in 1956 and encompasses the major developments in film during the 1970s and in recent years. Particular attention will be given to the ongoing relationship of the three media, their different production conditions and assumed audiences.

**ZHSS2119****Post-Colonial Literature (including Travel Literature)**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof P Eggert*Prerequisite/s:* ZHSS1101 or ZHSS1102

This course selects from first-contact narratives of the Pacific, later narratives of the colonial period including early ethnographic work, and travel writing from a variety of countries from the Romantic period to the postmodern. Concepts deriving from postcolonial criticism and theory, and other sources, are explored.

**ZHSS2120****Heroism, Banditry and Manhood**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof P Eggert*Prerequisite/s:* ZHSS1101 or ZHSS1102

Growing up demands compromise. Incipient revolt normally gives way to conventionality and domesticity. But what happens when it doesn't? Literature is full of such cases: but why? This course looks historically at the problem via imaginative explorations of outlawry, heroism and crises in manhood in the nineteenth and twentieth centuries.

**ZHSS2121****Classic Literary Texts**

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr H Neilson*Prerequisite/s:* ZHSS1101 or ZHSS1102

In this course students will be introduced to some of the major works of Western culture, works that have been characterised as 'canonical' texts. The concept of 'canonicity' will be explored through a selection of material that may include the Old and New Testament and works from the Greco-Roman tradition, modern European classics in translation, and major works of English literature.

**ZHSS2123****Contemporary Literary Theory & Criticism**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Prof P Eggert*Prerequisite/s:* ZHSS1101 or ZHSS1102

This course will introduce students to some significant critical theories of the late twentieth century, and to associated notions of cultural and literary canonicity. We will consider a range of debates about the place and role of literary criticism such as structuralism and post-structuralism, feminism, new historicism, and ethics, through their application to a number of key cultural texts, including fiction and poetry from the Western literary tradition.

**ZHSS2131****The Hollywood Cut: Classical Novels and Film**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr H Neilson*Prerequisite/s:* ZHSS1101 or ZHSS1102

This course examines the rise of the novel in the eighteenth century, its great flowering in the Victorian period, and its adaptations into film in the twentieth century. Novels by such authors as Daniel Defoe, Jane Austen, George Eliot, Thomas Hardy, E.M. Forster, Virginia Woolf and George Orwell will be studied in the course.

**ZHSS2201****East Asia: Between Tradition and Modernity**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof S Lone*Prerequisite/s:* ZHSS1201 or ZHSS1202

The aim of this subject is to understand the impact on nineteenth century China and Japan of growing immersion in an industrial world economy dominated by the Western imperialist powers. In particular, it looks at the ideas of 'tradition' and 'modernity' in East Asia and the reasons why China and Japan responded in such contrasting ways to the challenge of 'Western' culture.

**ZHSS2202****Modern Australia: Politics and Culture**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr F Cain*Prerequisite/s:* ZHSS1201 or ZHSS1202

This course explores the major themes in Australian political, cultural and economic history in the twentieth century. Topics include relationships between external events and domestic politics, the changing political consequences of Federal-State financial arrangements, the significance of wars in the expansion of Commonwealth powers, the reforms of the Whitlam era, the changing roles of women in Australian society, and the role of the Australian film industry in the evolution of a distinctive Australian culture.

**ZHSS2203****Naval History and Sea Power in the Twentieth Century**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Dr L Reeve*Prerequisite/s:* ZHSS1201 or ZHSS1202

We will study navies and sea power, on the international stage, c.1890 to the present, especially navies as a vital part of the wider context of twentieth-century history. The emphasis will be on strategic and grand strategic, rather than tactical themes, although these will feature in case studies (e.g. the Battle of the Atlantic). Topics will include Mahan and the classical maritime strategists, the world wars at sea, sea power and the British empire, the Cold War, the Falklands War, current issues and the future of sea power, naval command, and the personal experience of naval warfare.

**ZHSS2204****Rise of Modern Navies & Sea Power**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Dr L Reeve*Prerequisite/s:* ZHSS1201 or ZHSS1202

We will study navies and sea power from the age of discovery to the age of steam in the context of European political, economic and imperial history. We will explore the ideas of influential strategists such as Mahan through their historical writings. Topics will include the gunpowder revolution at sea, privateering and piracy, the rise of state navies, strategy and tactics, naval command from Drake to Nelson, life at sea and the experience of naval warfare from the Spanish Armada to Trafalgar and beyond, and the role of sea power in major wars, trade, empire, and international law.

**ZHSS2206****Social Change in East Asia**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Assoc Prof S Lone*Prerequisite/s:* ZHSS1201 or ZHSS1202

This course charts the social and ideological changes in Japan and China over the twentieth century. The focus is on such themes as the rise of militarism, the reaction to capitalism, ideas of democracy, nationalism and individual rights. The intention is to understand how the states and peoples of present-day East Asia have come to view themselves and their position within a globalised culture.

**ZHSS2207****Soviet History**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Dr L Bowman*Prerequisite/s:* ZHSS1201 or ZHSS1202

This course tracks the dramatic rise and fall of the Soviet utopian experiment from 1917 to 1991. Revolution, wars, famine, purges, economic upheavals and cultural subversions dot the treacherous landscape of Soviet history. We will investigate both the issues and the actors of the Soviet past. Finally, the course will survey Russia's ongoing crisis of political, national, cultural and military identity.

**ZHSS2209****The Making of Contemporary Society**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Dr L Bowman*Prerequisite/s:* ZHSS1201 or ZHSS1202

This course will investigate the people, events and issues that have shaped contemporary society from 1950 to the present. Music reverberates throughout the course as a signpost of change. Pivotal themes are race relations, sexuality and gender in Australia, the United States, and the United Kingdom. We will also examine the impact of the Vietnam War, post-war immigration, and the technology explosion. Students will take a critical look at the importance of iconic figures such as Malcolm X, the Rolling Stones, Germaine Greer, Marilyn Monroe, Cold Chisel and Midnight Oil.

**ZHSS2210****The Origins of Modern War**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* School Office*Prerequisite/s:* ZHSS1201 or ZHSS1202

A study of warfare from the early 16th century to the eve of the First World War. The course emphasises the changing nature of warfare and the forces employed in it, discussing such topics as the emergence of professional standing armies, the growth of centralised bureaucratic power, the development of staff systems and of professionalism, problems of reform, and the influence of wider political, social and economic factors.

**ZHSS2211****The Second World War**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Ms D Lackerstein*Prerequisite/s:* ZHSS1201 or ZHSS1202

This course will give students an understanding of the greatest conflict in history through a broad coverage of its military, social, political, economic and moral aspects. The course traces the major campaigns and key turning points of the military war and deals with the impact of the war on the home fronts and under German occupation. Students will be introduced to the moral issues raised by this world conflict and the differing historical interpretations of them: the barbarisation of warfare, the Final Solution, the dropping of the first atomic bomb and the trials that ended the war.

**ZHSS2212****Australian Military History 1788 to the Present**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Grey*Prerequisite/s:* ZHSS1201 or ZHSS1202

This course is designed to provide students with an understanding of the impact of war, the military, and defence issues generally on the development of Australian society over the two hundred years of European settlement, with an emphasis upon the period since 1899. While not neglecting the pre-Federation period, the focus of the course is on substantive issues arising from involvement in Australia's wars in the twentieth century and the periods of peace between them.

**ZHSS2214****The History of Indonesian Defence Policy**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Ms N Baker*Prerequisite/s:* ZHSS1201 or ZHSS1202

This course will examine the history of Indonesia's defence and security-related foreign policies, and activities since independence. Issues discussed will include: the colonial legacy and occupation, the indivisibility of internal and external threat; the absorption of West Papua, confrontation with Malaysia, and the invasion of East Timor; the strategy of Total People's Defence; maritime security; the history of relationships with China, the United States and Australia; and the imperatives of, and impediments to, regional security cooperation.

**ZHSS2215****Studies in International History**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof P Dennis*Prerequisite/s:* ZHSS1201 or ZHSS1202

This course will examine a series of case studies in international/diplomatic history in the 19th and 20th centuries, including the development of the Concert of Europe, the Bismarckian alliance system, the beginning and ending of the two world wars, and aspects of the Cold War. It will examine the various factors that underpin states' security policies, and assess the effectiveness or otherwise of attempts to use diplomacy to further national interests.

**ZHSS2216****US Military History: a survey from colonial times to the present**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof J Grey

This course will provide students with a basic grounding in the military history of the United States, the current global superpower and Australia's key strategic partner. Following consideration of the colonial origins of the American military and early colonial military experience, the course will examine the evolution of the American way of war across the 18th-20th centuries. Attention will focus on the development of the US armed forces, the growth of national security machinery, the role of the military in westward expansion and the creation of an American empire, the military as a vehicle for social engineering, the marriage of American technology with American warmaking, and the political economy of the US military, amongst others. It will conclude with consideration of developments since the September 11 attacks.

**ZHSS2217****Genocide: Crime of Crimes**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Ms D Lackerstein*Prerequisite/s:* ZHSS1201 or ZHSS1202

The phenomenon of genocide has been called 'the crime of crimes'. This course seeks to give the student an understanding of the history of genocide in the modern world. The main focus of the course is on the twentieth century and on the Jewish Holocaust during the Second World War. The course also takes a comparative approach by examining other genocides, the origins of the concept and contemporary debates surrounding its definition and prevention.

Students will explore issues such as: the link between genocide and war; motivation of perpetrators; the moral dilemmas of victims and bystanders; and how the definition of genocide as a crime in international law affects the policy of modern states. Students will also examine the most recent historical arguments of genocide, including the question of colonial genocide.

**ZHSS2301****Indonesian 2A**

UC School of Humanities and Social Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Mr P Tickell*Prerequisite/s:* ZHSS1302 or AIND1102

This is the first session of an intermediate level of a study of Indonesian language and culture which focuses on oral competence in Indonesian as well as providing an understanding of Indonesian cultures and society. Students are expected to attend at least one contact hour per day.

**ZHSS2302****Indonesian 2B**

UC School of Humanities and Social Sciences

UOC6 HPW5

S2 on-campus

*Staff Contact:* Mr P Tickell*Prerequisite/s:* ZHSS2301 or AIND2101

This is the second session of an intermediate-level study of Indonesian language and culture which focuses on oral competence in Indonesian as well as providing an understanding of Indonesian cultures and society. Students are expected to attend at least one contact hour per day.

**ZHSS2303****Advanced Indonesian 2C**

UC School of Humanities and Social Sciences

UOC12 HPW6

S1 on-campus

*Staff Contact:* Ms M Nurhayati*Prerequisite/s:* ZHSS1304

This is the first session of an advanced-level Indonesian language course for students who have completed Indonesian 1C and 1D or equivalent. The course emphasises advanced levels of oral and written competence in the Indonesian language as well as an understanding of Indonesian cultures and societies. The course makes use of authentic Indonesian language materials from the press, literature and mass media.

**ZHSS2304****Advanced Indonesian 2D**

UC School of Humanities and Social Sciences

UOC12 HPW6

S2 on-campus

*Staff Contact:* Ms M Nurhayati*Prerequisite/s:* ZHSS2303

This course is the second session continuation of Indonesian 2C, which further develops advanced levels of oral and written competence in the Indonesian language and an understanding of Indonesian cultures and societies.

**ZHSS2401****Japan: From Warmonger to Peacekeeper**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Assoc Prof A George Mulgan*Prerequisite/s:* ZHSS1401 or ZHSS1402

How does a country infamous for its imperialist aggression in the first half of the 20th century transform itself into a global civilian state? This course examines the policies, concepts and processes behind the remaking of Japan's international image. It evaluates the constitutional legacy of WWII, Japan's experience of American occupation, and the rhetoric and reality of Japanese pacifism. The course questions whether the limits to Japan's military power, its predilection for chequebook diplomacy and its non-military security contributions make it an international anomaly. Japan's alternative security futures are also assessed by examining its desire to be a 'normal' state and the resurgence of Japanese nationalism.

**ZHSS2402****Political Cultures in Asia and the Pacific**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr J Walker*Prerequisite/s:* ZHSS1401 or ZHSS1402

This course introduces students to the analysis of culture as a source of social and political action and understanding, exploring relationships between political forms and culture in Asia and the Pacific. The unit will draw examples from India, Indonesia, Malaysia, Japan and the Pacific. This Politics course may be taken as part of the Indonesian – Malay Studies Minor.

**ZHSS2403****Politics of China**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr J Zhang*Prerequisite/s:* ZHSS1401 or ZHSS1402

This course introduces the structure and working of the political system of China. It examines the working through of China's revolution before and since 1949. The course includes such topics as the role of the Communist Party, and other formal and informal political groups. It examines political leadership in China, the role of the military, political dissent and opposition, the significance of Marxism-Leninism-Mao Zedong Thought, the tensions between capitalism and socialism, the prospects for change, and the values and interests involved in policy-making and social control.

**ZHSS2404****Politics of the USA**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof M Mackerras*Prerequisite/s:* ZHSS1401 or ZHSS1402

The USA is the world's most important power and its longest continuous democracy, but its current President was elected by less than 25 per cent of its voters. He even received fewer votes than his main opponent! Furthermore 'the land of the free' imprisons its people at a per capita rate six times of the world's most imprisoning democracy. This course explains why these things are so and consists of an examination of the American Constitution, the federal system, the Supreme Court and executive-legislative relations. Attention is also given to major current controversies in the United States.

**ZHSS2407****War and Politics**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Dr G Mount*Prerequisite/s:* ZHSS1401 or ZHSS1402

The way that war is defined or declared is an inherently political process because it reflects underlying assumptions and overarching agendas concerned with human nature, rational choice, ethics, social attitudes or even civilisational values. In turn, these claims inform debates about the just cause or conduct, management, resolution or elimination of war. War seems endemic in human history but it has also undergone radical transformation. How will war in the twenty-first century be shaped by technology, tribalism, globalisation and democratisation? Drawing upon both classical and contemporary debates, this course will examine the complex relationship between war and politics.

**ZHSS2408****Civil-Military Relations in the Asia-Pacific Region**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof C Thayer*Prerequisite/s:* ZHSS1401 or ZHSS1402

How do states control their armed forces in order to prevent military intervention in domestic politics? The Asia Pacific Region provides two models of successful civilian control over the military: liberal democratic states where the armed forces do not play a political role and communist states where the military plays a highly political role. Elsewhere in the region the pattern is mixed.



Several states have experienced repeated military intervention followed by a return to civilian rule while other states remain firmly under military control. This course examines these varying patterns of civil-military relations and military intervention in selected countries from the Asia Pacific Region.

**ZHSS2410****Modern Political Ideologies**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Assoc Prof D Lovell

Politics may appear to be simply a struggle between different interests for 'who gets what', but ideas are important. During the twentieth century millions of people supported, and died in the name of, fascism and communism. Such ideologies may be finished and everybody may nowadays be a democrat, yet people differ over what is just and free. Ideas ground political institutions; they guide policies; and they shape political struggles. This course investigates the foundational ideologies of modern politics - liberalism, conservatism and socialism - and explores the ideologies that contend with democratic systems, including feminism, multiculturalism and environmentalism.

**ZHSS2411****Political Change in Indonesia**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Dr J Walker

*Prerequisite/s:* ZHSS1201 or ZHSS1202

This course explores the processes through which political regimes in Indonesia were established and maintained, and the means through which they were overthrown. The course will pay particular attention to Indonesian political cultures, political identities, the relationship between economic and political development and decay, the coercive powers of the state, and the role of dissenters. This Politics course may be taken as part of the Indonesian – Malay Studies Minor.

**ZHSS2412****Politics of Australian Security**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof A Bergin

*Prerequisite/s:* ZHSS1401 or ZHSS1402

This course will examine current and future issues facing Australian national security planners. It will cover the major challenges relating to Australian foreign and defence policy, as well as broader issues relating to homeland security.

**ZHSS2414****Regional Security Issues**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Assoc Prof A Bergin

*Prerequisite/s:* ZHSS1401 or ZHSS1402

The regional security environment is rapidly changing. Where once, we looked chiefly to territorial disputes between states, we are now aware of the many other ways in which security may be threatened. These include concerns over environmental degradation, access to fresh water, drug and arms trafficking, terrorism, and issues of governance and corruption. The countries of our region are affected by many of these problems, but they have also begun to cooperate on issues of security concern through bodies such as ASEAN. This course examines the many challenges to regional security, and the responses to them.

**ZHSS2415****Politics of International Law**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Assoc Prof A Bergin

This course will survey international law, focusing on world order issues of legal and political importance. The major principles and concepts of international law will be surveyed as well as the functions and processes of international legal rules. The course will address specific legal problems found in world politics such as human rights, war, terrorism, environmental regulation and economic development. Particular attention will be given to the structure and processes of international and regional organisations, most especially the role, function and utility of the United Nations.

**ZHSS2416****The Comparative Politics of Southeast Asia: Political Transition and Political Change**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof C Thayer

The Politics of Southeast Asia is a broad survey course of the eleven political systems making up the Southeast Asian region: Brunei, Burma (Myanmar), Cambodia, East Timor, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand and Vietnam. The focus is on the contemporary period. The course critically evaluates various frameworks that are employed by political scientists to understand the political process: democratic, electoral democracy, semi-democratic, semi-authoritarian, authoritarian pluralist, Leninist and military regime.

Then the course examines in detail constitutional structures, the process of political change and transition, leadership, opposition, civil society, the political role of the military, political Islam, corruption and crony capitalism, and political violence and armed separatism.

**ZHSS2417****Ethnopolitics**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Dr G Mount

This course examines the relationship between 'ethnicity' (broadly defined) and politics. Students will be introduced to the conceptual debates within the multidisciplinary field of ethnic studies and will be required to critically assess the political dynamics of specific case studies. Part I examines definitional debates about ethnicity and nationalism and considers the relationship between theory and policy. Part II compares and contrasts various political and social contexts where ethnic cleavages have become sources of conflict and those where communal differences have not lead to conflict. In particular the claim that democracy and civil society offer some insurance against ethnic conflict will be scrutinised. Part III examines the international politics of ethnic conflict. Many contemporary ethnic conflicts have their origins in the legacies of imperialism. Modern forces such as globalisation have exacerbated or ameliorated the conditions for ethnic conflict. Part IV surveys strategies for the management, resolution and reconciliation between ethnic communities.

**ZHSS2501****Contemporary Muslim Identity in Indonesia and Beyond**

UC School of Humanities and Social Sciences

UOC6 HPW2

S2 on-campus

*Staff Contact:* Dr M Sakai

*Prerequisite/s:* Any two of ZHSS1201 or ZHSS1202 or ZHSS1301 or ZHSS1302 or ZHSS1401 or ZHSS1402

The course examines transformations in contemporary Muslim communities around the world with a focus on Indonesia. It will introduce students to Muslim religious belief and practices and their historical development in Indonesia. It will also explore the status of women and the relations between Muslim organisations and the state, and highlight activities of trans-national Muslim communities in the world. This course may be taken as part of the Indonesian-Malay studies Minor. It may be taken as part of a major or minor in History or Politics with permission from the Head of School.

**ZHSS2502****Becoming Indonesian: Regional, National and Global Identities**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Mr P Tickell

*Prerequisite/s:* Any two of ZHSS1201 or ZHSS1202 or ZHSS1301 or ZHSS1302 or ZHSS1401 or ZHSS1402

This course explores the interplay between regional, national and global "identities" (ie. how people perceive themselves and their group affiliations) in Indonesia in the twentieth and twenty-first centuries. In particular it looks at the emergence of a dominant, yet in many ways minority national culture and polity in Indonesia in the 20th Century, the way this culture/polity is linked to European colonialism, its antecedents within Indonesian culture and politics, its appropriation of regional cultures, its creation of "tradition", its expression in literature and the arts, its complex relationship with Islam and pan-Islamic identities, and the influences of modern technologies on identities, in particular radio, television, and the internet. This course may be taken as part of the minor in Indonesian-Malay Studies. It may be taken as part of major or minor in History or Politics with the permission of the Head of School.

**ZHSS2503****State Systems in Pre-Colonial Southeast Asia**

UC School of Humanities and Social Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Dr J Walker

*Prerequisite/s:* Any two of ZHSS1201 or ZHSS1202 or ZHSS1301 or ZHSS1302 or ZHSS1401 or ZHSS1402

This course focuses on processes of state formation in southeast Asia, on the nature of the pre-colonial state and on relations between states and non-state forms of organisation and identity, eg. tribes, with a particular focus on the Malay peninsula and Indonesian archipelago. This course may be taken as part of a major or minor in Politics, or as part of the Indonesian-Malay Studies minor. It may be taken as part of a major or minor in History with the permission of the Head of School.

**ZHSS3301****Indonesian 3A**

UC School of Humanities and Social Sciences

UOC12 HPW6

S1 on-campus

*Staff Contact:* Ms M Nurhayati*Prerequisite/s:* ZHSS2302 or AIND2102

This is the first session of an advanced Indonesian course, which focuses on oral competence in Indonesian as well as providing an understanding of Indonesian cultures and society. Students are expected to read and respond to authentic Indonesian materials. They should develop advanced language skills as well as a good understanding of the topics covered in class. Students are expected to attend at least one contact hour per day.

**ZHSS3302****Indonesian 3B**

UC School of Humanities and Social Sciences

UOC12 HPW6

S2 on-campus

*Staff Contact:* Ms M Nurhayati*Prerequisite/s:* ZHSS3301

This is the second session of an advanced Indonesian course, which focuses on oral competence in Indonesian as well as providing an understanding of Indonesian cultures and society.

Students are expected to read and respond to authentic Indonesian materials. They should develop advanced language skills as well as a good understanding of the topics covered in class. Students are expected to attend at least one contact hour per day.

**ZHSS3303****Reading Course in Indonesian I**

UC School of Humanities and Social Sciences

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr E Jurriens*Prerequisite/s:* ZHSS2304

This reading course consists of reading and translating the Indonesian texts on contemporary Indonesian society and culture, followed by discussions in the Indonesian language. Readings will be organised in line with the key themes relating to Indonesian society and culture. Medium of instructions will be Indonesian.

**ZHSS3304****Reading Course in Indonesian II**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Dr E Jurriens*Prerequisite/s:* ZHSS3303

This reading course consists of reading and translating the Indonesian texts on contemporary Indonesian society and culture, followed by discussions in the Indonesian language. Readings will be organised in line with the key themes relating to Indonesian society and culture. Medium of instructions will be Indonesian.

**ZHSS4191****English 4 (Honours) Full-Time**

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC24 HPW4

S1 on-campus, S2 on-campus

*Staff Contact:* Prof P Eggert*Prerequisite/s:* ZHSS3101 and ZHSS3102 passed at credit level or better

Thesis of 12,500 words on a topic to be chosen by candidates in consultation with the Head of School; and three courses, with an additional reading course if required.

**ZHSS4192****English 4 (Honours) Part-Time**

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC12 HPW2

S1 on-campus, S2 on-campus

*Staff Contact:* Dr H Neilson*Prerequisite/s:* ZHSS3101 and ZHSS3102 passed at credit level or better

Students will complete a thesis of approximately 12,500 words, together with advanced coursework to be determined by the Head of School.

**ZHSS4201****History 4 (Honours) Full-Time**

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC24 HPW4

S1 on-campus, S2 on-campus

*Staff Contact:* School Office*Prerequisite/s:* ZHSS3201 and ZHSS3202 passed at Credit level or better.

Students will complete a thesis of approximately 15,000 words, together with advanced coursework to be determined by the Head of School

**ZHSS4202****History 4 (Honours) Part-Time**

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC12 HPW2

S1 on-campus, S2 on-campus

*Staff Contact:* School Office

*Prerequisite/s:* ZHSS3201 and ZHSS3202 passed at Credit level or better.

Students will complete a thesis of approximately 15,000 words, together with advanced coursework to be determined by the Head of School.

**ZHSS4491****Politics 4 (Honours) Full-Time**

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC24 HPW4

S1 on-campus, S2 on-campus

*Staff Contact:* Assoc Prof R Prior

*Prerequisite/s:* Completion of a major in Politics at Credit level or better.

Students will complete a thesis of approximately 15,000 words, together with advanced coursework to be determined by the Head of School.

**ZHSS4492****Politics 4 (Honours) Part-Time**

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC12 HPW2

S1 on-campus, S2 on-campus

*Staff Contact:* School Office

*Prerequisite/s:* Completion of a major in Politics at Credit level or better.

Students will complete a thesis of approximately 15,000 words, together with advanced coursework to be determined by the Head of School.

**INTERDISCIPLINARY COURSES****ZINT1001****Engineering Computational Methods 1**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr S Barry

The solution of practical engineering problems utilising: solutions sources, analytical tools, numerical tools, formal solution approaches, algebraic equations, vector and matrix operations, graphical techniques. Topics from a range of engineering disciplines will draw from mathematical techniques such as differentiation, integration, special functions, statistical description of data, random numbers, sorting, function optimisation, Taylor's series, ordinary differential equations. The course will be presented jointly by three schools - ACME, ITEE and PEMS.

**ZINT2504****Introduction to Electrical and Mechanical Plant**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr W Smith

Electrical Plant: Introduction to single and three-phase power systems; generation transmission and distribution. Measurement of real, apparent and imaginary power in AC circuits, power factor correction. Electrical machines; introduction to DC, single and three-phase motor characteristics and applications. Electrical safety. Mechanical Plant: Introduction to heat, thermodynamics, gases. Introduction to refrigeration, air conditioning, waste disposal. Plant and equipment, refrigeration and air conditioning systems, boilers, chillers, diesel/petrol/other fuel engines, sewerage plant, garbage compactors, recycling crushers (quarry), civil engineering plant.

**ZINT2505****Custom and Change in Melanesia**

UC School of Humanities and Social Sciences

UOC6 HPW3

S2 on-campus

*Staff Contact:* Ms N Baker

Australia considers the Southwest Pacific of vital strategic importance and the ADF is playing an active role in what is seen as an increasingly unstable region. This course will provide students with an understanding of the cultures and causes of tension in West Papua, Papua New Guinea, the Solomon Islands, Vanuatu and Fiji. It will begin with the geography and settlement of the region, and then discuss the development of Indigenous social structures, modes of production and exchange, and attitudes to power, force, and dispute resolution in each of these areas.

It then deals with the impact of colonization and the importation of alien social, economic, and political ideas, before exploring the ways in which the different communities of Melanesia are navigating a world of accelerated change. This course may be taken as part of a major or minor in History or Geography.

### **ZINT3001**

#### **Aircraft Systems & Avionics**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

*Staff Contact:* Mr R Lewis

*Prerequisite/s:* ZACM1051

A description of the evolution of aircraft systems and avionics will provide the student with the rationales employed in the arrangement and purpose of various aircraft systems and avionics. An overview of the design and function of both mechanical and non-mechanical aircraft systems will introduce the student to the integrated systems of transport-type and fighter-type aircraft.

### **ZINT4001**

#### **Systems Engineering & Risk Management and Safety**

UC School of Aerospace, Civil and Mechanical Eng

UOC3 HPW2

S2 on-campus

*Staff Contact:* Dr J Milthorpe

This course is designed to develop an understanding of Systems Engineering, Risk Management and safety in engineering. The following topics will be treated: systems engineering process and systems engineering management, assessment of hazard and risk in engineering projects, hazards to the environment, third parties, staff and the project, contribution of engineering knowledge and engineering theory to analysis of Engineering System Risk and Safety.

## **SCHOOL OF INFORMATION TECHNOLOGY AND ELECTRICAL ENGINEERING**

### **ZITE1001**

#### **Computer Tools for Engineers**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Mr M Ford

This course will prepare first-year engineering students to use the computer and computer programming as tools for use in their engineering course and future employment. Students will gain: an awareness of what a computing system consists of and broadly how a computer works; an introductory knowledge of some computing packages that will be useful for studies; an introductory knowledge of the structured approach to problem solving using a computer; a working familiarity with the engineering language/environment MATLAB, and the ability to employ it for problem solving.

### **ZITE1101**

#### **Introduction to Computer Science**

UC Information Technology and Electrical Eng

UOC6 HPW5

S1 on-campus

*Staff Contact:* Dr F Clermont

This course introduces students to computer science and computer programming, assuming no prior knowledge. Students will know about computers and what you can do with them, will understand how programming fits within computer systems development, and will be able to develop algorithms and express them in programs. Topics include computer architecture and systems, data representation, systems development life cycles, problem solving, algorithm development, introduction to programming in Java. Laboratory sessions will help students to develop practical skills with computer applications, problem solving, and programming

### **ZITE1102**

#### **Programming Fundamentals**

UC Information Technology and Electrical Eng

UOC6 HPW5

S2 on-campus

*Staff Contact:* Dr F Clermont

*Prerequisite/s:* ZITE1101

Programming Fundamentals builds on Introduction to Computer Science, concentrating on computer programming in an object oriented paradigm. Students will know how to analyse a problem and design a program, and will be able to implement programs in Java. Topics include algorithms, classes and objects, OO design, control structures, applets, data structures, analysis of algorithms, searching and sorting, recursion.

**ZITE1201****Circuits and Systems 1**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr E Huntington

Resistance and Ohm's Law; Kirchoff's voltage and current laws; power; simple DC circuits; superposition; Thevenin's theorem; Norton's theorem; node and mesh analysis; dependent sources; electrical measurements; RMS voltages and currents; capacitance and inductance; impedance and admittance; phasors; simple AC circuits, transformers.

**ZITE1202****Digital Systems 1**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

This course explores the differences between analogue and digital signals; number systems and conversions; Binary arithmetic; Complement notation for negative numbers; Error detection and error correction codes; AND, OR and NOT operations; Formulation of Boolean expressions; Boolean theorems; Minimisation of Boolean expressions; Karnaugh maps for up to 6 variables; Analysis of sequential circuits; Stable and unstable states; Introduction to flip flops; algorithmic state machine approach to the description of digital circuits, analysis of synchronous sequential circuits, design of synchronous sequential circuits.

**ZITE1203****Digital Systems 2**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr M Pickering

Interfacing with the analogue world; Digital-to-Analogue conversion; Analogue-to-Digital conversion; Memory devices; Programmable logic devices; Storage devices; Data organization; Arithmetic/Logic Unit; Synchronous System Design; Schmitt trigger devices. An introduction to the electrical engineering profession, the role of the electrical engineer in society and in the services; the relationship of electrical engineering to the sciences; engineering ethics; equal employment opportunity and related issues of equity; confidentiality and privacy; occupational health and safety; industrial democracy.

**ZITE1204****Electronics 1**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr G Milford

Introduction to intrinsic and doped semiconductors; Formation and characteristics of a PN junction diode; Zener and avalanche breakdown. Diode rectifier and simple filter circuits. Regulated power supplies using Zener diodes. Basic construction and characteristics of bipolar junction transistors (BJT); biasing circuits and Q-point selection. DC and graphical analysis of single stage, small signal, low frequency amplifier circuits. Introduction to electronic CAD tools (PSPICE). Operational amplifiers; ideal and non-ideal performance; introduction to filter and wave shaping circuit applications. Choosing electronic components.

**ZITE1205****Programming Fundamentals for Engineers**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr TG Freeman*Prerequisite/s:* ZITE1001

Programming Fundamentals for Engineers builds on Computer Tools for Engineers. The procedural programming concepts of that subject are adapted to the Object Oriented paradigm. Students will know how to solve a simple well-defined problem and program it. The student will have a working familiarity with the programming language Java, and an introductory knowledge of analysis and design in the object-oriented paradigm.

**ZITE1301****Introduction to Information Systems**

UC Information Technology and Electrical Eng

UOC6 HPW5

S1 on-campus

*Staff Contact:* Mrs C Andrews

This course gives an overview of computer-based information systems. Students will know how information technology can be used to support decision-making in large organisations. They will become aware of the underlying theories, techniques, and tools that they need to be well-informed users and to become managers of information systems within a large organisation. Topics include decision theory, information representation, conceptual modelling, planning and project management, strategic role of information systems, information systems tools. Students will work in small groups undertaking Defence-related case studies to develop their knowledge. Laboratory sessions will help students to develop practical skills in different software packages.

**ZITE1302****Information Systems in Organisations**

UC Information Technology and Electrical Eng

UOC6 HPW5

S2 on-campus

*Staff Contact:* Mrs C Andrews*Prerequisite/s:* ZITE1301

Information Systems in Organisations builds upon Introduction to Information Systems, to increase students' knowledge of specific tools and techniques that can be used to design and construct large Information Systems. Students will learn how to use systems thinking to make decisions in order to solve real-life, information-based problems, with an emphasis upon Defence applications. Topics include basic concepts in system theory, business analysis, system design; computer operations, including architecture, operating systems, software, databases, and networks; applications in organisations, including enterprise-wide systems, decision support systems, e-learning, intelligent systems; issues, including computer security and ethics.

**ZITE2001****Managing Information Systems**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 on-campus

*Staff Contact:* Dr A McLucas*Prerequisite/s:* Enrolment in program 4405

This course introduces students to the theory and practice of managing the information resources used in organisations. It covers the management of the risks associated with the use of software, hardware and networking components of information systems; ensuring performance in support of business processes and conformity with business practices. Topics include ICT governance at the local level, advantages and disadvantages of options for ICT infrastructure within enterprise architectures, service level agreements, local procurement issues, security and continuity.

**ZITE2002****Principles of Electrical and Electronics Technology**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr X Jia

An application based course covering the following topics. DC circuit analysis, DC measurements, DC power sources. Introduction to AC circuit analysis, single and three phase. AC measurements. AC power systems. Concept of transducers. Operational amplifiers (Op-Amps), examples of Op-Amp circuits. Basic principles of digital electronics, analogue-to-digital and digital-to-analogue converters. Magnetic fields and circuits, electrical, magnetic and mechanical interaction. Transformers. DC machines, commutation, control. Principles of AC synchronous and induction motors.

**ZITE2003****Avionics for Aviators**

UC Information Technology and Electrical Eng

UOC3 HPW2

S1 on-campus

*Staff Contact:* Mr R Faulconbridge

The student is introduced to the role of avionics systems in modern aircraft. The course sets out to describe the role of avionics in: flight control systems; self contained and external navigation aids: voice and data communications systems. The issues relating to the human-machine-interface are covered and the use of modern avionics buses and their applications to avionics integration are discussed.

**ZITE2101****Computer Languages and Algorithms**

UC Information Technology and Electrical Eng

UOC6 HPW5

S2 on-campus

*Staff Contact:* Dr D Essam*Prerequisite/s:* ZITE1102

This course introduces students to the main programming paradigms, comparative features of computer languages, data structures and algorithms. Paradigms covered in the course may include low-level languages, traditional imperative languages, and object-oriented, functional and logic paradigms. The course emphasizes: iterative, concurrent and recursive control structures; simple linear data structures such as arrays and lists; and applications especially in sorting algorithms.

**ZITE2102****Computer Technology**

UC Information Technology and Electrical Eng

UOC6 HPW5

S1 on-campus

*Staff Contact:* Dr L Brown*Prerequisite/s:* ZITE1102

This course presents details of the range of computing and data networking technologies available and how they can be applied. Topics to be covered include: computer architectures computer system configurations from embedded to super-computers, operating systems functions and components, system administration tasks, data networking infrastructure alternatives, data networking protocol families, network design, configuration and administration, and distributed application architecture alternatives including client-server and peer-to-peer.

**ZITE2201****Advanced Programming for Engineers**

UC Information Technology and Electrical Eng

UOC6 HPW6

S1 on-campus

*Staff Contact:* Dr M Barlow*Prerequisite/s:* ZITE1101 and ZITE1205

Good software is versatile, efficient and reliable. This course teaches advanced concepts and techniques in problem solving by computer in order to enable the student to tackle sophisticated programming problems, and do it well. The course has three key streams - algorithms, programming paradigms, and data structures. In the area of algorithms, analysis of the complexity & efficiency of a solution is taught, as well as several key techniques including searching, sorting, recursion, and hashing. In the area of programming paradigms, the theory and practice of Object Oriented, Event Driven, and Concurrent programming is taught - equipping the student to tackle a far wider range of problems. The data structures stream addresses the classic area of dynamic memory management - linked lists, queues, stacks, and trees - enabling students to write programs that are responsive, at runtime, to the size and type of the problem.

**ZITE2202****Circuits and Systems 2**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof L Godara

Natural response of RL and RC circuits; forced response of RL and RC circuits; complete response of RLC circuits; sinusoidal steady state and phasor analysis revisited; AC node and mesh analysis; mutual inductance; op-amps and op-amp amplifiers; two-port networks; computer aided circuit analysis and design.

**ZITE2203****Digital Systems 3**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Assoc Prof D Fraser

Manufacturing integrated circuits; Resistor-Transistor Logic (RTL); Diode-Transistor Logic (DTL); Transistor- Transistor Logic (TTL); Metal-Oxide-Semiconductor Field-Effect Transistors (MOSFETs); MOSFET logic; Interfacing different logic families; Tri-state outputs. The design and development of digital computers and/or systems. Topics can include: Computer organisation, comparative architecture of CPUs viewed from CISC and RISC design philosophies; the parallel computer data bus, handshaking, control, data flow; memories and memory organisation; peripherals; serial data buses (e.g., Ethernet); machine level programming, machine code, assembly language; massively parallel computers.

**ZITE2204****Electronics 2**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof L Godara

Features and consequences of the electronic band structure: electron and hole carriers, effective mass, carrier mobility, direct and indirect band gaps, generation and recombination processes, the Hall effect and its applications. Sources of semiconductor noise. Quantitative theory of PN junction devices; space charge capacitance, diffusion capacitance and switching effects. Heterostructures, the metal-semiconductor barrier, ohmic contacts. Basic construction and characteristics of field-effect transistors (JFET and MOSFET); biasing circuits and Q-point selection. Introduction to FET and BJT (hybrid-pi) small signal models, low frequency analysis of small signal amplifiers, regulated power supplies.

**ZITE2205****Electronics Design Laboratory 1**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr A Lambert

This course comprises a series of electronic circuit analysis and design exercises which students undertake both individually and in small groups. Initially students are required to complete the design and calculate component values for a number of analogue and digital circuits that perform relatively simple and well defined task. The circuits are designed, constructed and tested by each student. Students then form groups and undertake the analysis, design, construction and testing of more complex electronic systems that are designed to meet specified performance targets. This course provides students with the opportunity to consolidate theoretical material from other courses.

**ZITE2206****Signals and Systems**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Assoc Prof L Godara

Laplace transforms; partial fraction expansions; simple and multiple poles and zeros; convolution; linear system impulse response and transfer function; Bode diagrams; active filters; Fourier series and Fourier transform; properties of the Fourier transform; Fourier spectrum and power spectrum; Parseval's theorem; Energy spectral density and power spectral density.



## ZITE2301

### Design of Information Systems

UC Information Technology and Electrical Eng

UOC6 HPW5

S1 on-campus

Staff Contact: Mrs J Backhouse

Prerequisite/s: ZITE1301 and ZITE1302

Students will analyse, design and build a workgroup level information system to consolidate and apply core information systems competencies introduced in 2nd semester IS studies.

## ZITE2302

### Operation of Information Systems

UC Information Technology and Electrical Eng

UOC6 HPW5

S2 on-campus

Staff Contact: Mr T Turner

Prerequisite/s: ZITE2301

Students will establish and operate a workgroup level information system environment. The course will further develop, consolidate and apply Design of IS knowledge and introduce the students to the IS environment to develop and practice operational management skills.

## ZITE2401

### Computer Tools for Decision Making

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Dr R Sarker

Prerequisite/s: ZITE1102 or ZITE1302

The aim of this introductory course is to examine the basic quantitative techniques of Operations Research (OR). The course generally covers: History of OR, nature of OR problems, OR modelling and problem solving approaches. Specific topics include: linear programming, distribution and allocation models, integer programming, network models, game theory, goal programming and OR modelling using computer packages.

## ZITE2402

### Decision Analysis

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

Staff Contact: Prof J Arnold

Prerequisite/s: ZITE1102 or ZITE1302

The aim of this course is to expose students to various methods of analysing decision-making problems and demonstrate their use. The topics covered will include decision tables, decision trees, influence diagrams, descriptive theories, Utility theory, multifactor evaluation techniques and group decision-making techniques.

## ZITE3101

### Computing Project - Computer Science

UC Information Technology and Electrical Eng

UOC6 HPW2

S2 on-campus

Staff Contact: Mr M Ford

Prerequisite/s: ZITE3103

A substantial supervised project in a small team in consultation with an appropriate member of the school. Topics for projects will be garnered from the School, Defence and local organisations, and will be chosen in consultation with staff.

## ZITE3102

### Cryptography

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Dr L Brown

Prerequisite/s: ZITE2101 or ZITE2201

This course provides details of the history, theoretical foundations, and the current state of cryptographic algorithms. Topics may include classical cipher design and analysis; modern private key block cipher design, details, modes of use and analysis; stream ciphers; an introduction to number theory; public key encryption algorithms; digital signatures and hash functions; key management, X.509 certificates and certificate authorities; quantum computing and quantum cryptography.

## ZITE3103

### Data Structures and Representation

UC Information Technology and Electrical Eng

UOC6 HPW5

S1 on-campus

Staff Contact: Dr M Barlow

Prerequisite/s: ZITE2101

This course further explores the representation of data in computer systems, from both data-centric and algorithm-centric perspectives. Data-centric topics may include relational data representation and databases, hierarchical data representation and XML, and knowledge representation and reasoning, with an emphasis on system design. Advanced data structures studied may include hash tables and tree structures. The study of applications concentrates particularly on the issues of problem representation, and on search methods for constraint satisfaction and optimisation.

**ZITE3104****Electronic Commerce**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Mrs C Andrews

This course provides students with an overview of the technological and managerial issues associated with electronic business (e-business). The different categories of e-business transactions are examined together with the technologies and applications that underpin them. Aspects of the strategic and legal environments in which e-business applications are implemented are also examined.

**ZITE3105****Human Computer Interaction**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr TG Freeman*Prerequisite/s:* ZITE2101 or ZITE2201

This course presents the principles and practical aspects of designing, implementing and evaluating user interfaces. Topics include: interfaces in web documents and in a client-server architecture; criteria for judging interfaces; information presentation techniques; programming to respond to and control interfaces.

**ZITE3106****Interactive Computer Graphics**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr TG Freeman*Prerequisite/s:* ZITE2101 or ZITE2201

This course teaches students about interactive graphics of 2D and 3D scenes, and programming to produce graphics. Topics include rubber shape drawing, graphical input event handling, perspective and orthographic views, transformation of coordinate spaces, colour perception and specification, animation, double buffering, ray tracing, surface properties, scene rendering.

**ZITE3107****Multimedia and Virtual Environments**

UC Information Technology and Electrical Eng

UOC3 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold*Prerequisite/s:* ZITE2101 or ZITE2201

Theory and practice of multimedia and virtual environment construction. Types and formats of different digital media (images, sounds, movies, 3D models, animation). Issues in construction. Practical work in Java and VRML.

**ZITE3108****Java Programming Applications**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr TG Freeman*Prerequisite/s:* ZITE2101 or ZITE2201

This course explores more advanced features of the Java packages that support programming, beyond what is covered in ZITE1102 or ZITE1205. It covers different types of file organization, the use of threads for concurrent programming, the ability to determine at run-time the properties of an object, the ability to create a class within another class, the ability to call methods on an object running on a remote machine, the use of servlets and JSP on websites, access to databases, and calling functions within another language.

**ZITE3109****Knowledge Based Systems**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Assoc Prof H Abbass*Prerequisite/s:* ZITE1102 or ZITE1302 or ZITE1205

This course covers the underlying technologies, and the planning and implementation of knowledge based systems in organisations. It covers issues of knowledge representation and the corresponding inference engines, providing practical experience in the design and implementation of knowledge-based systems. It discusses the integration of knowledge-based systems with the operating environment, and their interaction with web applications. It addresses the issues of acquiring the knowledge for a knowledge based system, its development processes, and the evaluation of systems.

**ZITE3110****Software Engineering**

UC Information Technology and Electrical Eng

UOC6 HPW6

S1 on-campus

*Staff Contact:* Dr C Lokan*Prerequisite/s:* ZITE2101

This course aims to give students an understanding of the difficulties involved in developing large software systems, and of tools and techniques for overcoming these problems. The major item for assessment is a group project.

Technical skills taught include analysis and design (structured and object-oriented), documenting requirements and design, design for modifiability and understandability, testing, and the use of appropriate tools. Management skills taught include project planning and tracking, estimation, quality assurance, configuration management, process improvement. The course also includes material on professionalism and ethical responsibilities in software development and human-computer interaction.

### ZITE3111

#### Special Topic

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC3 HPW3

S1 on-campus, S2 on-campus

Staff Contact: Prof J Arnold

Prerequisite/s: ZITE1102 or ZITE1302 or ZITE1205

Occasional topics of relevance in the area of Information Technology, given by visitors or external lecturers or members of staff.

### ZITE3112

#### Special Topic 2

UC Information Technology and Electrical Eng

UOC3 HPW3

NOT OFFERED IN 2006

Staff Contact: Prof J Arnold

Occasional topics of relevance in the area of Information Technology, given by visitors, external lecturers or members of staff.

### ZITE3201

#### Analogue Communications

UC Information Technology and Electrical Eng

UOC4 HPW4

S1 on-campus

Staff Contact: Dr X Jia

Review of Fourier transform and its properties. Amplitude and modulation, double sideband, single sideband, vestigial sideband. AM modulators and demodulators, coherent detection, envelope detection. Angle modulation: frequency modulation, phase modulation, narrowband FM, wideband FM, FM modulators and demodulators. FDM, QAM, Superhetrodyne receiver. White noise, narrowband noise and signal to noise ratio. Pre-emphasis and de-emphasis and system comparisons.

### ZITE3202

#### Control Theory 1

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

Staff Contact: Dr V Ougrinovski

Introduction to feedback control systems; deriving models from physical systems; transfer function models; state space models; block diagram manipulation; conversion between state space and transfer function models; state space phase variable form; model uncertainty; linearization of nonlinear models; sensor noise and actuator saturation; pole placement controller design; transient response of control systems; inverse Laplace transform calculation of transient response; dominant poles; time domain response of state space systems; the use of MATLAB and SIMULINK in control systems modelling, simulation and design.

### ZITE3203

#### Control Theory 2

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Dr V Ougrinovski

Control system accuracy and steady state error; integral action; frequency response; Bode plots; Nyquist plots; graphical construction of Bode and Nyquist plots; control system stability for discrete and continuous systems; Nyquist stability criterion; gain and phase margins; stability robustness; root locus diagrams; lead and lag compensators; PID compensators; loop shaping control system design; the use of MATLAB in frequency domain control analysis and design; MATLAB tools for modern control system design.

### ZITE3204

#### Digital Communications

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

Staff Contact: Prof J Arnold

Revision of Fourier techniques; sampling theorem and aliasing; quantisation noise; pulse code modulation; bandwidth requirement of digital signals; entropy of signals; channel capacity, entropy encoding; differential PCM, DM and CVSDM techniques; synchronization; matched filters; decision theory; baseband systems; intersymbol interference; equalisation; M-ary baseband systems; binary modulation techniques, performance comparisons.

**ZITE3205****Electrical Power and Machines**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

Magnetic circuits and magnetic materials; single phase and three phase transformers; real and reactive power, electromagnetic energy conversion principles; principle of rotating electric machines. DC machines, steady-state behaviour and speed control. Rotating mmf waves in AC machines, synchronous machines, principles of operation and equivalent circuit, steady-state behaviour.

**ZITE3206****Electronics 3**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr G Milford

Electronic circuit analysis and design using computer aids. Frequency response of amplifiers; exact analysis, Miller Theorem approximation and Time Constant analysis. Differential and multistage amplifiers. Feedback amplifiers. Electronic oscillator circuits. Characterisation of noise in electronic circuits. Practicalities: electronic component parasitics, circuit stability, coupling and decoupling, circuit prototyping and construction.

**ZITE3207****Electronics Design Laboratory 2**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr A Lambert

This course continues the electronic circuit design experience of Electronics Design Laboratory 1, providing students with a range of laboratory experience, including the analysis, design, construction and testing of a variety of electronic circuits. Students typically work in pairs to produce and characterise a basic analogue AM communication system consisting of transmitter and receiver circuitry. Each group then undertakes additional analysis and design to supplement the basic system with additional features, such as alternative analogue or digital modulation schemes, frequency agility etc. This course provides students with the opportunity to consolidate theoretical material from other courses.

**ZITE3208****Engineering Electromagnetics 1**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr G Milford

Transmission Lines: structures, transmission line parameters, characteristic impedance, propagation constant, reflection and transmission coefficients, Smith Chart, transmission line applications. Review of Vector tools: grad, div, curl and theorems; coordinate systems. Review of Electrostatics and Magnetostatics. Maxwell's equations and electromagnetic boundary conditions; wave equation and time harmonic fields. From Theory to Practice: solution of antenna radiation and wave propagation problems. Propagation: Plane wave propagation in lossless and lossy media, normal and oblique incidence to conducting and dielectric boundaries, reflection and transmission coefficients; propagation over the Earth (free space, ground wave, ionospheric and diffraction effects).

**ZITE3209****Engineering Electromagnetics 2**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr E Huntington

Waveguides: TEM, TE and TM propagation; field theory for metal (rectangular and circular) and dielectric (optical) waveguides; losses, modes, cutoff, wavelength, dispersion and bandwidth. Antennas: elemental dipole, radiation pattern, polarisation, directivity, gain, impedance; wire and loop antennas, aperture antennas; antenna arrays.

**ZITE3210****Management Science E**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof H Abbass*Prerequisite/s:* ZITE1001, ZITE1205, ZPEM1304

This course examines various quantitative techniques of management science with their applications to engineering design and decision problems. The course generally covers: the decision making process, mathematical formulation and problem solving techniques. Specific topics are: linear, integer, and goal programming, network optimisation, inventory and queueing systems.

### **ZITE3211**

#### **Microcomputer Interfacing**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr A Lambert

Introduction to programming in the C language. Program development, debugging and execution on an 8 bit embedded microprocessor system. Unconditional input/output interfacing. Interfacing of keyboards, displays, motors, ADC's and DAC's. I/O interfacing using interrupts. Introduction to cooperative and pre-emptive tasking.

### **ZITE3212**

#### **Optoelectronic Techniques**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr E Huntington

The electromagnetic spectrum; the nature of light, blackbody radiation. The detection process in the visible and infrared spectrum. Operation and characteristics of photon detection devices; photoconductive cells, photodiodes, phototransistors, and photoemissive devices. Effects of noise. Light emitting diodes and diode lasers. Introduction to optical communication systems. A project will comprise approximately one third of the course.

### **ZITE3214**

#### **Power Electronics and Electrical Drives**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr V Ougrinovski

Power Semiconductor Devices; AC to DC converters; DC to DC switch-mode converts; DC to AC inverters; Induction motors - rotating mmf, basic principles of operation, equivalent circuit, torque-speed characteristics; Induction motor drives - speed control by varying stator frequency and voltage; variable reluctance and stepper-motor drives; synchronous servomotor drives.

### **ZITE3301**

#### **Applications of Information Systems**

UC Information Technology and Electrical Eng

UOC6 HPW5

S2 on-campus

*Staff Contact:* Mr T Turner

*Prerequisite/s:* ZITE1301 and ZITE1302

This course examines the different types of information systems used by the business, government and military sectors. Applications considered vary from C3I systems through to e-business systems.

The course also includes material on enterprise architecture. Students will acquire research skills in a chosen research topic that amplifies their knowledge of an aspect of these applications.

### **ZITE3302**

#### **Management of Work Systems**

UC Information Technology and Electrical Eng

UOC6 HPW5

S1 on-campus

*Staff Contact:* Dr A McLucas

*Prerequisite/s:* ZITE2301

Students will be able to provide advice about introducing and managing information systems in large organisations. This course will increase students' awareness of the issues of IT governance, software project management, change management, and work practices.

### **ZITE3303**

#### **Selection of Systems**

UC Information Technology and Electrical Eng

UOC6 HPW5

S1 on-campus

*Staff Contact:* Mrs J Backhouse

*Prerequisite/s:* ZITE2302

Students will be able to select information systems that best support business objectives. A broad range of methodologies, tools and techniques for evaluating, and acquiring information systems and services will be explored.

### **ZITE3304**

#### **Computing Project - Information Systems**

UC Information Technology and Electrical Eng

UOC6 HPW2

S2 on-campus

*Staff Contact:* Mr M Ford

A substantial supervised project in a small team in consultation with an appropriate member of the school. Topics for projects will be garnered from the School, Defence and local organisations, and will be chosen in consultation with staff.

### **ZITE3305**

#### **Special Topic 3**

UC Information Technology and Electrical Eng

UOC6 HPW5

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

Occasional topics of relevance in the area of Information technology, given by visitors or external lecturers or members of staff.

**ZITE3401****Operations Research**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC3 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

*Prerequisite/s:* ZITE2401

This course introduces a number of Operations Research techniques and their applications to various real-world problems. The topics include: project planning and controlling tools, markov models, queueing systems, reliability, maintenance and replacement models, inventory theory, dynamic programming and case studies in OR.

**ZITE3402****Operations Research Project**

UC Information Technology and Electrical Eng

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

*Prerequisite/s:* ZITE2101 or ZITE2301 or  
ZITE2401 or ZITE2201

A substantial supervised project in a small team in consultation with an appropriate member of the school. Topics for projects will be garnered from the School, Defence and local organisations, and will be chosen in consultation with staff.

**ZITE3403****Optimisation Techniques**

UC Information Technology and Electrical Eng

UOC3 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

*Prerequisite/s:* ZITE1102 or ZITE1302 or ZITE1205

This course introduces the students to a set of computational models for optimisation. The course covers a simple introduction to graph theory, satisfiability, travelling salesman problem, heuristics, evolutionary computation, and continuous optimisation. Students are not expected to have a strong mathematical background but they should be comfortable with mathematical notations.

**ZITE3404****Simulation**

UC Information Technology and Electrical Eng

UOC3 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

*Prerequisite/s:* ZITE1102 ZITE1205 or ZITE1302 or ZPEM1302

This course introduces students to the skills of writing simulation models. Topics will include concepts of modelling, continuous and discrete systems, random number generation and tests for randomness, time-stepped and event-stepped simulation, object oriented simulation techniques, statistical analysis of output, verification and validation approaches of simulation models.

**ZITE4101****Computer Science 4 (Combined Honours) F/T**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* Dr F Clermont

In the Combined Honours programs candidates are required to present a thesis or research project on a topic that is concerned with Computer Science/Information Systems and the interests of the other School involved, the thesis or project being supervised and examined by the two Schools conjointly. In addition, candidates are required to complete coursework as approved by the Head of School.

**ZITE4102****Computer Science 4 (Combined Honours) P/T**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Dr F Clermont

In the Combined Honours programs candidates are required to present a thesis or research project on a topic that is concerned with Computer Science/Information Systems and the interests of the other School involved, the thesis or project being supervised and examined by the two Schools conjointly. In addition, candidates are required to complete coursework as approved by the Head of School.

**ZITE4103****Computer Science 4 (Honours) F/T**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* Dr F Clermont

A course of advanced lectures and seminars supported by appropriate projects approved by the Head of School.

**ZITE4104****Computer Science 4 (Honours) Part-Time**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Dr F Clermont

A course of advanced lectures and seminars supported by appropriate projects approved by the Head of School.

**ZITE4201****Advanced Communication Techniques**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Prof J Arnold

M-ary ASK, FSK and PSK systems, performance comparisons; hardware implementation of ASK, FSK and PSK modulators and demodulators; channel coding, block codes (e.g. BCH and RS codes), convolutional codes, Viterbi decoding; modulation and coding trade-offs, QPSK, OQPSK, MSK and QAM systems; secure communications: encryption, spread spectrum modulation (direct sequence and frequency hopping).

**ZITE4202****Antennas and Propagation**

UC Information Technology and Electrical Eng

UOC3 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Assoc Prof L Godara

Antenna fundamentals: wave equation and boundary conditions, scalar and vector potentials, far field radiation pattern, directivity, gain, efficiency, terminal impedance. Antenna types: survey of wire, aperture and array antennas; EMI and EMC. Analysis tools: estimation methods, moment method, NEC and ELNEC, visualisation tools. Receive antennas: effective height or area, Friis transmission formula, antenna noise, communication link design. Propagation: free space, ground wave, troposphere, ionosphere effects; flat and spherical Earth propagation; modelling and prediction over long and short distances.

**ZITE4203****Avionics and Navigational Aids**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Mr R Faulconbridge

This course evaluates avionics systems by examining the systems architecture. The design of subsystems and interfaces are reviewed with particular emphasis on the integration of sensors and use of multiplex bus architecture.

Active navigation aids such as ILS, TACAN, DME, VOR are introduced but greater emphasis is placed on the more modern integrated navigation systems using GPS, INS, DOPPLER and AIR DATA sensor components. This material will focus on applied real time computing implementing a discrete Kalman filter to achieve sensor integration.

**ZITE4204****Communications Networks**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Assoc Prof L Godara

Introduction to communications networks, the ISO OSI and TCP/IP reference models, ISDN and ATM; concepts of transmission, switching, signalling and framing; overview of multiple access protocols, IEEE standards for LANS and MANS, bridges and high speed LANS; study of routing and congestion control schemes, internetworking and connection management; understanding of network design issues and network security; examples of networks including the Internet and ATM networks; applications of communications networks.

**ZITE4205****Communications Systems**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof M Frater

Review of signal characteristics including bandwidth requirements of common data and message types in voice, picture and data transmission; discussion of transmission media and their signal handling capabilities, dispersion and attenuation characteristics, and the determination of signal bandwidth; understanding of open wire, coaxial cable and optical fibre channels; design considerations for microwave radio, satellite links, RF transmission, troposcatter and optical communications systems; review of mobile communication concepts; understanding of fading and channel characteristics; multiple access schemes, diversity techniques and wireless standards; cellular design fundamentals; and familiarisation with modulation techniques for mobile communications; importance and need for equalisers.

**ZITE4206****Computer Control Theory**

UC Information Technology and Electrical Eng

UOC3 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

Control system implementation; discrete time state space models; sampling of continuous time state space models; time domain response of discrete time systems; use of MATLAB and SIMULINK in the simulation of computer control systems; stability of discrete time systems; controllability and observability; disturbance models and

random processes; MATLAB tools for computer control system design; pole placement state feedback controller design; state estimation and observers; output feedback controller design; linear quadratic optimal control; Kalman Filters and optimal filtering theory.

**ZITE4207****Digital Image Processing and Remote Sensing**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Assoc Prof D Fraser

Digital Image Processing: as 2D or higher dimensional signal processing; image domain and frequency domain filtering; capture and display; registration; enhancement; HSI and uniform colour space; warping and interpolation - rotation, non-linear warping, morphing; restoration. Applications - astronomical imaging, surveillance, forensic, medical, machine vision. Remote Sensing: Planck's black body radiation law and wavelength selection; atmospheric windows; passive/active microwaves; reflectance and scattering of the earth's surface; past, present and future systems, high and low resolution sensors including multispectral scanners and CCD arrays; SLAR and SAR radar; distortion and correction; radiometric and geometric enhancement, interpretation of imagery and classification techniques.

**ZITE4208****Digital Signal Processing**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr A Lambert

Discrete time signals and systems, difference equations, state equations, discrete convolution, complex analysis, Z-transforms, inverse transforms, transfer functions, discrete-time Fourier transform, transform properties, sampling and aliasing, artefacts of block processing. Discrete Fourier transform signal processing including the FFT, frequency response estimation, interpolation, downsampling, convolution, block convolution, correlation, cepstrum. Digital FIR Filter Design including windowing. Digital IIR Filter Design, discrete-time approximation of analogue filters, Linear phase filters, filter structures and DSP hardware. Quadrature Mirror Filters, sub-band filtering, and the Wavelet transform.

**ZITE4209****Electronics 4**

UC Information Technology and Electrical Eng

UOC3 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

Oscillators: configurations, design; Noise: thermal and non-thermal mechanisms, characterisation, Op-Amp noise parameters, BJT noise parameters (Y and S), communication system noise characterisation; noise

figure, noise factor, noise temperature, noise measurement; Filters: passive filter analysis and design, active filter analysis and design, filter specifications and measurement; Mixers: unbalanced, single and double balanced mixers, non-linear behaviour and characterisation, applications; Introduction to Phase Lock Loop synthesisers: loop analysis, available components, noise.

**ZITE4210****Guided Weapons Electronics**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Prof J Arnold

This course is an introduction to the multi disciplinary engineering found in guided weapons. It covers dispersion errors in unguided weapons, the modelling of a weapon trajectory and looks at guided weapons from a system perspective. The course focus is on guided weapons instrumentation, guided weapons autopilots (control), and the application of automatic control guidance methods including guidance homing & proportional navigation. An overview is presented on guidance homing heads, proximity fuses & arming, acoustic guidance and counter measures.

**ZITE4211****Image and Video Transmission Systems**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

Physiological aspects of television, television standards, colour systems with particular reference to the PAL system. Television equipment; cameras, transmitters, receivers, video recorders. An introduction to digital video and image transmission, JPEG image compression standard, MPEG audio and video compression standards, digital television standards, digital video broadcasting.

**ZITE4212****Introduction to Radar and Radar Imaging**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr X Jia

Radar Fundamentals: range, backscatter, noise, clutter, range equation, RCS. Clutter: backscatter characteristics (sea, land, rain), target detection. RCS: backscatter characteristics, low reflection materials, mission design. CW/FM Radar: doppler, range and frequency resolution, system design. Pulse Radar: pulse width, PRF, resolution, signal spectrum, ambiguities in range/doppler, pulse integration. MTI Radar: non-coherent and coherent detection, matched filter, pulse compression, system design. Imaging Radar: range and cross-range resolution, image formation and characteristics, distributed and point targets, inverse imaging, SAR and ISAR system design,



airborne/spaceborne SAR platforms (AIRSAR, Seasat, ERS, Radarsat). Applications: target detection, Earth resources assessment, atmospheric monitoring.

#### **ZITE4213**

##### **Lasers and Laser Applications**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr E Huntington

Interaction of radiation with matter; spontaneous and stimulated emission, coherent radiation. Line broadening mechanism. Population inversion and pumping schemes, threshold conditions for oscillation. Design and principles of operation of maser and laser systems. Non-linear optics, optical frequency harmonic and sub-harmonic generation, Q-switching and modulation techniques. Introduction to a selection of defence, industrial and medical laser applications such as laser range finding, laser-guided munitions, directed energy weapons, holographic non-destructive-testing, 3-D display, optical signal processing and lidar.

#### **ZITE4214**

##### **Modelling and Simulation**

UC Information Technology and Electrical Eng

UOC3 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

Models for nonlinear systems, phase portraits, linearization, limit cycles, nonlinear system stability, chaotic systems. Case studies involving switching control systems. Van der Pol oscillator, nonlinear systems with hysteresis, nonlinear resistor circuits (tunnel diode and Chua circuits). Computer simulation of nonlinear systems, use of MATLAB and SIMULINK in simulation. Modelling via system identification, MATLAB systems identification toolbox.

#### **ZITE4215**

##### **Occasional Option 1: Underwater Communications**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Prof J Arnold

The syllabus for this course changes from one occasion to the next, allowing the presentation of a modern topic by a visiting academic of eminence or a special lecture course on a trial basis.

#### **ZITE4216**

##### **Occasional Option 2**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

The syllabus for this course changes from one occasion to the next, allowing the presentation of a modern topic by a visiting academic of eminence or a special lecture course on a trial basis.

#### **ZITE4217**

##### **Occasional Option 3**

UC Information Technology and Electrical Eng

UOC3 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

The syllabus for this course changes from one occasion to the next, allowing the presentation of a modern topic by a visiting academic of eminence or a special lecture course on a trial basis.

#### **ZITE4218**

##### **Occasional Option 4**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Prof J Arnold

The syllabus for this course changes from one occasion to the next, allowing the presentation of a modern topic by a visiting academic of eminence or a special lecture course on a trial basis.

#### **ZITE4219**

##### **Power Systems**

UC Information Technology and Electrical Eng

UOC3 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

Introduction to power systems; networks; transmission and distribution; Power system components; transmission lines, generators and three phase transformers. Steady state analysis of power systems; symmetrical and asymmetrical faults, power flow, load frequency control, transmission losses. Introduction to power systems dynamics and dynamic simulation.

**ZITE4220****Robotics and Mechanical Systems**

UC Information Technology and Electrical Eng

UOC3 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

Introduction to different robot configurations. Homogeneous transformations; Kinematics; inverse kinematics; Jacobians; robot dynamics; Newton Euler methods; Flexible robots; Flexible beam dynamics; Euler-Lagrange equation; Acoustical system dynamics; modal analysis; transfer functions; Finite-dimensional models; Modelling of piezoelectric actuators, DC motors, acoustic speakers. Classical and modern control methods for the control of robots, flexible structures and acoustical systems.

**ZITE4221****Software Engineering: Principles and Practice**

UC Information Technology and Electrical Eng

UOC3 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

A course that presents the principles of the software engineering discipline and practices students in the application of software engineering techniques. The theoretical component of the course covers current issues in software development and acquisition, process models, software management issues, computer-aided software engineering (CASE), software cost and schedule estimation, software development standards, software documentation, capability maturity models, metrics, quality assurance, configuration management, validation and verification, and test and evaluation. These principles are then reinforced through the conduct of a number of laboratory exercises to practice good software design and development.

**ZITE4222****Systems Engineering**

UC Information Technology and Electrical Eng

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr M Ryan

Systems Engineering provides a framework within which to develop an understanding of the processes and management practises associated with the Systems Engineering discipline. The underlying Systems Engineering process is presented and is shown to be applied repeatedly throughout the entire system lifecycle. Attention then focuses on the broad topic of Systems Engineering Management and some of the activities normally associated with engineering management are detailed. The course also introduces tools commonly used in Systems Engineering and details how Systems Engineering coexists with other disciplines (particularly Project Management, Quality Management and Integrated Logistics Support Management).

**ZITE4299****Electrical Engineering: Project, Thesis, Laboratory Work, Practical Experience, Specialist Lectures**

UC Information Technology and Electrical Eng

UOC12 HPW9.5

S1 on-campus, S2 on-campus

*Staff Contact:* Prof J Arnold

The project will take the form of a minor piece of research or investigation, a feasibility study or design, or a comprehensive literature review chosen from a list of topics selected or approved by the Head of School. Where appropriate, these topics may be of a military nature. Group effort may be permitted in appropriate cases. In each case at least one staff member will be nominated as a supervisor to provide guidance and general supervision during the project and preparation of the thesis. Shortly after the May recess the students will prepare a poster presentation on their project, and late in second session each student will be required to lead a seminar on their project topic attended by other students taking this course and members of staff. Evidence of sufficient progress may be required from time to time. The thesis, which typically will have a length of from 15,000 to 20,000 words, is to be presented not later than the first day of examination period. Theses must be presented both typed and suitably bound and in electronic form. The laboratory work component of the course is made up of a program of practical work spread uniformly throughout the year. Before graduation a student shall complete 60 days of approved practical engineering experience which must be done in blocks of at least 20 working days each, each such block being in the service of a single employer. During the year students will be required to participate in a series of specialist lectures and seminars. Specialist lectures will normally take the form of attendance by students on at least eight occasions during the year at nominated meetings of the local professional societies.

**ZITE4301****Information Systems 4 (Combined Honours) Full-time**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* Dr F Clermont

In the Combined Honours programs candidates are required to present a thesis or research project on a topic that is concerned with Computer Science/Information Systems and the interests of the other School involved, the thesis or project being supervised and examined by the two Schools conjointly. In addition, candidates are required to complete coursework as approved by the Head of School.

## ZITE4302

### Information Systems 4 (Combined Honours) P/T

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Dr F Clermont

In the Combined Honours programs candidates are required to present a thesis or research project on a topic that is concerned with Computer Science/Information Systems and the interests of the other School involved, the thesis or project being supervised and examined by the two Schools conjointly. In addition, candidates are required to complete coursework as approved by the Head of School.

## ZITE4303

### Information Systems 4 (Honours) F/T

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* Dr F Clermont

A course of advanced lectures and seminars supported by appropriate projects approved by the Head of School.

## ZITE4304

### Information Systems 4 (Honours) P/T

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Dr F Clermont

A course of advanced lectures and seminars supported by appropriate projects approved by the Head of School.

## ZITE4401

### Operations Research & Statistics 4 (Honours) Full Time

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC24

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

A course of advanced lectures and seminars supported by appropriate projects approved by the Head of School. Operations Research and Statistics: Applying mathematical models to the solution of problems encountered by individuals, groups and organisations became a science during the Second World War and is now known as Operations Research or Management Science.

The techniques developed were, after the war, modified and extended to be applicable in the civilian world, in areas such as banking, mining, the oil industry, transportation, and many others. Today, the study of Operations Research and Management Science provides insight into decision making.

## ZITE4402

### Operations Research & Statistics 4 (Honours) Part Time

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC12

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

A course of advanced lectures and seminars supported by appropriate projects approved by the Head of School. Operations Research and Statistics: Applying mathematical models to the solution of problems encountered by individuals, groups and organisations became a science during the Second World War and is now known as Operations Research or Management Science. The techniques developed were, after the war, modified and extended to be applicable in the civilian world, in areas such as banking, mining, the oil industry, transportation, and many others. Today, the study of Operations Research and Management Science provides insight into decision making.

## SCHOOL OF PHYSICAL, ENVIRONMENTAL AND MATHEMATICAL SCIENCES

### ZPEM1101

#### Chemistry 1A

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S1 on-campus

*Staff Contact:* Dr L Wallace

The course commences with chemical reactions, the concepts involved in chemical equations and an introduction to nomenclature of inorganic and organic substances. The gas laws are presented and then the electronic structure of gaseous atoms is developed. This leads to the concept of an orbital and provides a basis for the later description of ionic and covalent bonding and molecular geometry. In kinetics the temperature and concentration dependence for rates of reaction are discussed. This includes the concepts of rate laws, activation energy and mechanism. Finally, the chemistry of carbon, organic chemistry, is studied. Topics include classes of organic compounds and common functional groups.

**ZPEM1102****Chemistry 1B**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S2 on-campus

*Staff Contact:* Dr L Wallace

The direction in which chemical reactions proceed (thermodynamics) is studied. There is an introduction to the laws of thermodynamics and the concepts of entropy, enthalpy and free energy. The degree to which a reaction proceeds (chemical equilibrium) is discussed and related to the change of free energy. Electron transfer (redox reaction) is introduced as an important area of chemistry, together with the principles of electrochemical cells. Some descriptive chemistry, including that of the transition elements, concludes the course.

**ZPEM1103****Engineering Chemistry 1A**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof C Woodward

This course gives a basic introduction to the electronic structure of atoms and molecules as well as the origin of inter-molecular forces and their implications for the strength of materials. We consider the microstructure of alloys and their phase transitions, and survey other modern materials such as composites, ceramics and polymers. Fundamental principles of corrosion and energetic materials are also covered.

**ZPEM1104****Engineering Chemistry 1B**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW4

S2 on-campus

*Staff Contact:* Assoc Prof C Woodward

In this course the basics of solution chemistry are introduced. Apart from simple solutions, such as electrolyte solutions, we also consider hydrophobic solvation and colloidal dispersions. Aspects of surface chemistry and colloidal stabilization are investigated. Chemical equilibria, including acid-base equilibrium, as well as the fundamentals of chemical kinetics are studied. An introduction to the chemistry of concrete and polymeric materials is also given.

**ZPEM1106****Introduction to Engineering Materials for Electrical Engineers**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof H Riesen

This course gives a basic introduction to the electronic structure of atoms and molecules as well as the origin of inter-molecular forces and their implications for the strength of materials. We consider the microstructure of alloys and their phase transitions, and fundamental principles of corrosion and energetic materials are also covered. Various materials of importance to electrical engineering are surveyed, including high temperature superconductors, conducting polymers, ceramics and semi-conductors.

**ZPEM1201****Geography 1A Global Environmental Change**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S1 on-campus

*Staff Contact:* Dr G Banks

Geographical perspectives on the nature and magnitude of global environmental change. Natural and anthropogenic processes and their global-scale impacts. Geographical implications of one or more of the following: global climate change, land degradation and land surface change, biodiversity and geodiversity, human dimensions of global change, population dynamics and urbanisation, sustainability and development, and globalisation of economic activity. The course normally involves a 2-day field school.

**ZPEM1202****Geography 1B: Geographies of Contemporary Australia**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S2 on-campus

*Staff Contact:* Prof B Lees

Geographical perspectives on Australian society and environment. A range of geographies that are relevant to understanding livelihood and land in contemporary Australia. Themes may include landscape processes and problems; biogeographical perspectives; resource availability, allocation and management; population, economic and social trends; urban, rural and regional issues; and heritage and cultural studies.

**ZPEM1301****Mathematics 1A**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S1 on-campus

*Staff Contact:* Dr Z Jovanoski

This course emphasizes understanding of mathematical concepts and developing an appreciation for mathematical thinking. Linear Algebra unveils the logical structure of mathematics and its development: geometrical description of vectors and their properties; problems leading to linear equations whose solution is facilitated by the development of matrix theory; applications of matrices in workforce planning and population dynamics; the study of eigenvalue problems. Calculus focuses on developing the essential skills of differentiation and integration, and applications to solve problems involving functions of one and two variables. It lays the foundations for subsequent studies in applied mathematics.

**ZPEM1302****Mathematics 1B**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S2 on-campus

*Staff Contact:* Dr P McIntyre*Prerequisite/s:* ZPEM1301

The course covers material from ordinary differential equations (ODE's), complex numbers and probability. These are arguably the most important tools when Mathematics is applied to situations in science and engineering. Students will study first-order and second-order ODE's analytically, graphically and numerically. Many applications of ODE's will be explored. The possibilities that complex numbers open up are fascinating, and proficiency in them is developed. Random variation is present in almost all modelling situations. The foundation to probability presented here will make students aware of how much order there is in 'randomness' and how uncertainty can be quantified.

**ZPEM1303****Engineering Mathematics 1A**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Dr S Barry

An introduction to the basics of calculus, complex numbers, linear algebra, modelling and differential equations. The course is designed to provide students from diverse backgrounds with the appropriate foundations for further studies in Mathematics and Engineering. The following topics are covered: algebra, calculus of a single variable, complex numbers, first-order differential equations, vectors and matrices.

**ZPEM1304****Engineering Mathematics 1B**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S2 on-campus

*Staff Contact:* Dr S Barry

This course covers three topics. The first, Linear Systems, considers linear second-order differential equations, phase planes and modelling various applicable systems using eigenvectors. The second topic, Probability, considers the fundamental laws of probability including continuous and discrete random variables, with applications to system reliability. The third topic, Multivariable Calculus, introduces the student to calculus in two dimensions such as gradients, line and double integrals and basic vector fields. There will be some use of computer packages such as MATLAB.

**ZPEM1401****Marine Science 1A**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S1 on-campus

*Staff Contact:* School Office

An introduction to the behaviour of the oceans, with an emphasis on processes associated with water circulation and the ocean's response to atmospheric forcing. Topics may include: an historical introduction to Marine Science, general properties of sea water, an introduction to waves and tides, oceanic and atmospheric circulation and their impacts on climate, El Nino. The course normally involves a three-day field school.

**ZPEM1402****Marine Science 1B**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S2 on-campus

*Staff Contact:* School Office

An introduction to the processes associated with the development of and interaction between the earth's crust and oceans. Topics may include: marine and submarine geology and bathymetry, structure of the sea floors, marine sediments, chemical oceanography, environmental and biological oceanography, coastal processes, marine resources and management, and Defence oceanography.

**ZPEM1501****Physics 1A**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S1 on-campus

*Staff Contact:* Assoc Prof W Lawson

Students will be introduced to Physics through a selection of topics in the following three areas: Motion and Ballistics; Thermodynamics of the Terrestrial Environment; and Space Physics and Astrodynamics. The laboratory program comprises up to eight laboratory experiments, each of three-hours' duration, relating to and supplementing the lecture course. Students acquire an appreciation of the place and utility of computers in Physics.

Mathematical methods classes are provided during the laboratory program to reinforce the mathematical skills essential to the Level I Physics lecture program.

**ZPEM1502****Physics 1B**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S2 on-campus

*Staff Contact:* Assoc Prof W Lawson

Students will be introduced to fundamental concepts in Physics through a selection of topics in three areas: Electromagnetism and Applications; Waves in Optical and Remote Sensing Systems; Atomic and Nuclear. The laboratory program comprises eight laboratory sessions, each of three-hours' duration, relating to and supplementing the lecture course.

**ZPEM1503****Engineering Physics 1A**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Assoc Prof W Lawson

Students will be introduced to fundamental concepts in Physics through a selection of topics in the following three areas. General Physics and Mechanics: dimensions and dimensional analysis; coordinate systems; kinematics and dynamics; Newton's laws of motion, momentum, friction; energy, work and power; rotational dynamics, moments of inertia, angular momentum. Wave Motion and Optics: classification of waves, wave equation, harmonic waves, superposition, standing waves, Doppler effect; Huygen's principle, reflection, refraction, lenses and mirrors, interference, diffraction, resolving power of instruments. Atomic and Nuclear Physics: wave-particle duality; the wave nature of particles; de Broglie wavelength; electron and x-ray diffraction; photoelectric effect; quantisation of energy; Bohr model of the hydrogen atom; the nucleus and nuclear particles, unstable nuclei; ionising radiation; radiocarbon dating; nuclear energy. Lectures and tutorials are supported by four three-hour laboratory sessions.

**ZPEM1504****Engineering Physics 1B**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S2 on-campus

*Staff Contact:* Assoc Prof W Lawson

Students will be introduced to fundamental concepts in Physics through a selection of topics in the following two areas: Electricity and Magnetism: Coulomb's law, calculations of electric fields and potentials; Gauss law, capacitance, conductors and electric currents, origins of electrical resistance, Ohm's law, electrical measurements; motion of charges in electric and magnetic fields; Ampere's law; Biot-Savart law; electromagnetic induction, Faraday's law, inductance; displacement current, Maxwell's equations in integral form. Properties of Matter and Heat: elasticity; hydrostatic pressure and buoyancy; surface tension; ideal fluids, Bernoulli's equation, real fluids; temperature, thermometry, thermal expansion, equations of state; kinetic theory of gases; first law of thermodynamics, heat capacity, latent heat; heat transfer processes, conduction, convection, radiation. Lectures and tutorials are supported by four three-hour laboratory sessions.

**ZPEM1505****Electrical Engineering Physics 1A**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S1 on-campus

*Staff Contact:* Assoc Prof W Lawson

The lecture/tutorial component is identical to *Engineering Physics 1A*. Lectures and tutorials are supported by eight three-hour laboratory sessions.

**ZPEM1506****Electrical Engineering Physics 1B**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S2 on-campus

*Staff Contact:* Assoc Prof W Lawson

The lecture/tutorial component is identical to *Engineering Physics 1B*. Lectures and tutorials are supported by eight three-hour laboratory sessions.

**ZPEM2101****Inorganic Chemistry 2**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Prof G Jackson

*Prerequisite/s:* ZPEM1101 and ZPEM1102

Inorganic chemistry can be defined as the chemistry of the elements other than organic carbon, and is widely applicable to natural and synthetic materials.

The various concepts of bonding for metals and non-metals are introduced, and these are applied to transition-metal chemistry, providing a basis for the understanding of the principles of coordination number, stereochemistry, lability, reactivity, and accessibility of multiple oxidation states. These principles are exemplified in the pivotal role played by metal ions and their coordination complexes in bio-inorganic chemistry, e.g. nitrogen fixation in living systems, and the use of metal ions and ligands in medicinal chemistry.

### **ZPEM2102**

#### **Organic Chemistry 2**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof G Collins

*Prerequisite/s:* ZPEM1101 and ZPEM1102

Organic chemistry is about the reactions, structures and synthesis of molecules that have a carbon-based backbone. These materials form the basis of all known life, most pharmaceuticals and a wide range of materials. In this course, we look at the skills that chemists need to determine the structure of the compounds that they have isolated or prepared; how to determine the way they will react; and introduce strategies used in synthesis. We introduce and use NMR and IR methods for structure determination. The reaction mechanisms are investigated using the traditional functional groups and the concepts of nucleophiles and electrophiles.

### **ZPEM2103**

#### **Physical Chemistry 2**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Assoc Prof H Riesen

*Prerequisite/s:* ZPEM1101 and ZPEM1102

In chemistry we often need to understand the behaviour of large collections of particles. Intuitively we know that thermodynamic properties must be related to intermolecular forces. In the first part of this unit the relationship between microscopic interactions and bulk thermodynamic properties will be examined and the principles of Statistical Mechanics developed and applied to chemical topics. The second part of this unit will present an introduction to quantum chemistry and its applications in spectroscopy, including EPR, NMR, rotational, vibrational and electronic transitions. The knowledge gained will facilitate a better understanding of the chemical properties of atoms, ions and molecules.

### **ZPEM2109**

#### **Environmental Chemistry**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr M Rahman

*Prerequisite/s:* ZPEM1101 and ZPEM1102

This course provides students with an appreciation and understanding of the background and concepts of environmental chemistry. The topics discussed are based on aquatic and atmospheric chemistry and are selected from the following areas: water and air quality; water purification; acid-base reactions in water; hydrolysis of organic compounds and hydrated metal ions; stratification of the atmosphere, and sources and abatement of toxic pollutants including particulate matter. The course includes a discussion of selected environmental issues such as global warming, acid rain, photochemical smog or ozone depletion and their environmental consequences.

### **ZPEM2111**

#### **Marine Chemistry 2**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr M Rahman

*Prerequisite/s:* ZPEM1401 and ZPEM1402

This course begins with discussion of the unique properties of water. The effects of pressure and temperature on the structure of water are examined, leading to consideration of structural changes due to the presence of hydrated ions, and properties such as diffusion, conductivity, and density of seawater. The chemical composition of seawater, its relationships with physical oceanographic and biological processes, techniques for the precise measurement of variables such as salinity and chlorinity, and their influence on speciation of major and trace elements, are illustrated using examples largely drawn from the chemistry of the southern oceans.

NOTE: This course is an Oceanography course; it cannot form part of a Chemistry Major or Minor.

### **ZPEM2202**

#### **Biogeography**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S2 on-campus

*Staff Contact:* Dr D Paull

Introduction to the principles of biogeography. Biotic and abiotic factors in plant and animal distributions. Energy flow and nutrient cycling in terrestrial and aquatic ecosystems. Plant and/or animal community dynamics and recent ecological change. Contemporary biogeographical and environmental issues may be highlighted.

**ZPEM2205****Geomorphology: Processes and Landscapes**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Dr J Shen

This is an introductory course in geomorphology, including global morphology, tectonic-surface process interactions and landscape development. The course focuses on geomorphic processes, landforms and evolution of hillslope, fluvial, glacial and coastal environments. This course includes a five-day residential field school in May.

**ZPEM2206****Fundamentals of Remote Sensing and Geographic Information Analysis**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S2 on-campus

*Staff Contact:* Dr I Takken*Exclusion/s:* ZPEM2210, ZPEM2403

This course is concerned with modern techniques for the acquisition, interpretation and analysis of digital spatial data. Remote sensing provides a unique source of information for a wide range of environmental, social and military applications. Geographic Information Systems allow for the analysis of remotely sensed and other geospatial data. Remote sensing and geographic information analysis techniques can be applied to almost all areas of human and physical geography and are an essential part of the geographer's toolkit! This course will introduce the science and theory of remote sensing, spatial data, and geographical analysis. In both lectures and practical exercises, contemporary analyses with remote sensing and GIS for social, environmental, oceanographic and military issues are highlighted. This course combines elements from both ZPEM2210 and ZPEM2403.

**ZPEM2207****Social Geography**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Dr S Sharpe

This course examines how societies shape the places in which they live, and how people's attitudes and behaviours are influenced by these places. The course focuses on urban areas, mainly in Australia, and explores the ways in which cities facilitate the exchange of goods, services, ideas, knowledge, culture and friendship. The course normally includes a five-day residential field school in May.

**ZPEM2209****Geographical Issues in the Asia-Pacific Region**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S2 on-campus

*Staff Contact:* Dr G Banks

This course is concerned with a range of contemporary geographical issues in the Asia-Pacific region. These may include landscape processes and problems; biogeography and biodiversity; population and urbanisation; trade, tourism and transport; poverty and rural development; resource exploitation and environmental management; and environmental hazards and human response. Case studies from particular areas and countries in the region may be emphasised in any one course.

**ZPEM2210****Fundamentals of Geographic Information Analysis**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr I Takken*Exclusion:* ZPEM2206

Geographic Information Systems allow for the linkage of location and information, and are therefore very powerful tools in the analysis for many types of spatial problems. Geographic information analysis techniques can be applied to almost all areas of human and physical geography and are an essential part of the geographer's toolkit! This course will introduce the science and theory of spatial data, spatial analysis and the basic application of GIS to geographic phenomena. Students who successfully complete the course will be able to create, manipulate, and manage geographic data and to present the results of their analyses through maps. In both lectures and practical exercises, contemporary analyses with GIS for social, environmental, oceanographic and military issues are highlighted.

**ZPEM2301****Linear Systems**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2.5

S1 on-campus

*Staff Contact:* Prof C Pask*Prerequisite/s:* ZPEM1301 and ZPEM1302

This course builds on the basic concepts of linear algebra introduced in ZPEM1301 *Mathematics 1A* and looks at a variety of applications—from fitting curves to data, to modelling systems of differential equations with applications to the evolution of population growth, problems in mechanics, chemical reactions and other areas of science. Key topics include the central concepts of linearity and linear superposition, generalisation of the dot product to an inner product, general vector spaces, and approximation of functions by orthogonal sets such as Fourier Series.



## **ZPEM2302**

### **Data Analysis**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr W Anderson

*Prerequisite/s:* ZPEM1301 and ZPEM1302

This course gives an introduction to data analysis, with emphasis on the analysis of experiments. It teaches the principles of good experimental design, and focuses on a project where you design and analyse your own experiment. The course introduces a simple statistical computer package that is used for data exploration and presentation, and the analysis of data from simple experimental and observational studies.

## **ZPEM2303**

### **Modelling Continuous Systems**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2.5

S2 on-campus

*Staff Contact:* Dr I Towers

*Prerequisite/s:* ZPEM1301 and ZPEM1302

Drawing on a basic knowledge of calculus and the fundamental principles of differential equations introduced in Level I Mathematics, we develop models from a variety of disciplines (such as biology, geography, archaeology and physics). The properties and methods of solution of first-order and second-order ordinary differential equations and some partial differential equations arising in these contexts are studied.

## **ZPEM2304**

### **Discrete Dynamics**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2.5

S1 on-campus

*Staff Contact:* Dr H Sidhu

*Prerequisite/s:* ZPEM1301 and ZPEM1302

Discrete dynamics is the study of quantities that change at discrete points in time, such as the size or genetic make-up of populations. Topics covered may include linear difference equations, the role of probability in discrete dynamical modelling, nonlinear difference equations, self-similarity and fractal geometry, systems of discrete equations. Examples will be drawn from diverse areas including biology and finance.

## **ZPEM2305**

### **Networks and Patterns**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2.5

S2 on-campus

*Staff Contact:* Dr Z Jovanoski

*Prerequisite/s:* ZPEM1301 and ZPEM1302

Networks are everywhere: roads, telephone lines, airline routes, nerve cells, family trees, social and management organisations and the world wide web for example. This course will provide an introduction to the mathematics of networks, looking at some of the key problems and applications. There will be an introduction to graph theory and the classic problems of Euler, Hamilton and the Travelling Salesperson. Additional topics may include an introduction to topology and symmetry theory as applied to networks.

## **ZPEM2306**

### **Regression Modelling**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr J Chapman

*Prerequisite/s:* ZPEM2302

Regression is one of the most widely used statistical tools. Its purpose is to uncover patterns in data, and to explore relationships between variables. The course emphasises informal techniques rather than mathematical analysis, and model building rather than formal statistical analysis. Topics covered include simple linear regression, multiple regression, graphical methods, transformations and model selection.

## **ZPEM2307**

### **Special Topic 2A**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC3 HPW2.5

NOT OFFERED IN 2006

*Staff Contact:* School Office

This course is available for the presentation of a specialist topic by a visiting member of staff or for presenting a lecture course on a trial basis.

**ZPEM2308****Special Topic 2B**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC3 HPW2.5

NOT OFFERED IN 2006

*Staff Contact:* School Office

This course is available for the presentation of a specialist topic by a visiting member of staff or for presenting a lecture course on a trial basis.

**ZPEM2309****Engineering Mathematics 2A**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S1 on-campus

*Staff Contact:* Dr G Aldis

*Prerequisite/s:* ZPEM1304

The course covers two distinct topics. The first, Ordinary Differential Equations (ODEs), looks at the basics of mathematical modelling with ODEs, non-dimensionalisation, first-order and second-order ODEs, Laplace transform methods, series solutions, perturbation methods, phase planes and non-linear systems. The second topic, Multivariable Calculus, looks at gradients, divergence, curl, multiple integrals, vector fields, vector fluxes and integral theorems. Both topics will use the MATLAB computer package and use examples from engineering and applied mathematics.

**ZPEM2310****Engineering Mathematics 2B**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW6

S2 on-campus

*Staff Contact:* Dr S Barry

*Prerequisite/s:* ZPEM2309

The course covers two distinct topics. The first, Partial Differential Equations PDEs, looks at the basics of mathematical modelling with PDEs with special emphasis on diffusion and wave equations in Cartesian, cylindrical and spherically symmetric systems. The course will cover non-dimensionalisation, separable PDEs and orthogonal functions. The second topic, Probability and Statistics, builds on the first-year probability course to consider a selection of topics such as: lifetime distributions, hypothesis testing, lifetime data and regression. Computer packages such as R and MATLAB will be used in both topics to analyse typical engineering problems.

**ZPEM2401****Ocean Dynamics 2A**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW4

S1 on-campus

*Staff Contact:* Dr H Wang

*Prerequisite/s:* ZPEM1301 or ZPEM1302,  
ZPEM1401 or ZPEM1402

Physical properties of the oceans and sea water including topics on salinity, temperature, density, water column stability, and double diffusion. An introduction to the flow of fluids and a description of the forces that control the currents of the world's oceans. Ideas of space-time scales in the ocean. The dynamics of wind-driven flow, the Ekman and geostrophic balances, and inertial oscillations. Tides in the oceans and the dynamics that govern tidal processes. Topics include equilibrium tidal theory, semi-diurnal and diurnal tides, Spring-Neap cycles, tides in gulfs. A field school is normally held for four days during the May recess during which students collect, process and analyse oceanographic data.

**ZPEM2402****Ocean Dynamics 2B**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr A Kiss

*Prerequisite/s:* ZPEM1301 or ZPEM1302,  
ZPEM1401 or ZPEM1402

Topics on surface gravity waves are discussed and may include wave dispersion, short and long surface waves, wave groups, wind generation of waves. Nearshore processes are discussed including topics on wave refraction and shoaling, surf and rip currents and longshore drift. An introduction is presented to the use of models in the marine environment to describe physical and ecological processes. We consider the development of models from our basic knowledge of the science of the oceans and consider analytical and numerical models with applications to both small-scale coastal systems and the global ocean.

**ZPEM2403****Fundamentals of Remote Sensing**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr I Takken

*Exclusion:* ZPEM2206

Remote sensing provides a unique source of information for various social, environmental, oceanographic and military applications. This course will focus on developing a theoretical understanding of remote sensing and the application of digital image processing techniques.

It provides an overview of remote sensing fundamentals, while lectures and practical exercises demonstrate basic applications of remote sensing in geography and oceanography.

### **ZPEM2501**

#### **Electronic Properties of Materials**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Assoc Prof G Stewart

*Prerequisite/s:* ZPEM1301, ZPEM1302, ZPEM1501, ZPEM1502

The course covers the physics relevant for the manufacture and operation of electronic and optoelectronic devices which have revolutionised civilian and military technology. In particular it discusses crystal structure, and its determination by x-ray diffraction and electron microscopy, as an introduction to the concept of wave-particle duality. Other topics include the time-independent Schrodinger equation and the quantum-mechanical description of electrons, the Pauli Exclusion Principle, an introduction to the concept of band gaps, factors influencing the speed of electronic switching, and the absorption and emission of photons. The physical concepts are applied to a selection of the following topics: high-speed amplifiers and modulation doping, band-gap engineering, semiconductor lasers and light-emitting diodes, solar cells, thermoelectric devices, and piezoelectric transducers.

### **ZPEM2502**

#### **Waves and Remote Sensing**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof W Lawson

*Prerequisite/s:* ZPEM1301, ZPEM1302, ZPEM1501, ZPEM1502

A selection of the following topics will be covered. General wave physics (diffraction and resolution limits; refractive index and wave velocity; ray tracing; dispersion and Fourier composition; wave energy transport). Wave propagation (sound in air; sound in water; light and other electromagnetic waves in the atmosphere; mirages; sonar and radar shadow zones; optical fibre imaging; radar, including time-of-flight ranging; pulse-Doppler systems; radio-acoustic sounding systems (RASS)). Electromagnetic radiation (dipoles; polarisation; dielectrics; electrets and magnets; eddy currents, metal detectors and magnetic anomaly detectors; the magnetron; displacement current; Maxwell's equations and the electromagnetic wave equation in free space and in ideal materials; generation and reception of electromagnetic waves; the Poynting vector).

### **ZPEM2503**

#### **Astronomy and Astrophysics**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr R Smith

*Prerequisite/s:* ZPEM1301, ZPEM1302, ZPEM1501, ZPEM1502

The course provides an introduction to the field of Astronomy and Astrophysics and as such encompasses a broad range of topics. For example, it is important to be familiar with the basic tools of astronomy in order to understand observations made using these tools. In addition, astronomy has developed its own terminology and system of measurement units that need to be understood. Central to the course is the process of stellar evolution, with tenuous beginnings in interstellar clouds and, for the more massive stars, spectacular endings in supernova explosions. Stars normally do not occur in isolation so they need to be seen as members of binary systems, star clusters, our own Milky Way Galaxy, other galaxies and even clusters of galaxies. Throughout the course the fundamental physics underpinning the observations and the processes that produce them needs to be kept in mind in order to provide a foundation for understanding what is taking place.

### **ZPEM2506**

#### **Meteorology and Atmospheric Physics**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr J Taylor

*Prerequisite/s:* ZPEM1301, ZPEM1302, ZPEM1501, ZPEM1502

*Exclusion/s:* ZGEN2402, ZPEM2511, ZPEM3527, ZPEM4505

A selection of the following will be explored: hydrostatic balance and the vertical structure of the atmosphere; altimetry. Pressure systems and winds; geostrophic, gradient and ageostrophic balance. The global circulation, synoptic-scale weather systems, airmasses and fronts, local winds. Thermodynamics of dry and moist air; the aerological diagram; stability and conditional stability; cloud base and tops.

**ZPEM2507****Sonar and Underwater Optics**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof G Stewart*Prerequisite/s:* ZPEM1301, ZPEM1302,  
ZPEM1401, ZPEM1402

The course includes the following topics: plane-wave approximation, acoustic refraction, ray tracing and sound channels; acoustic wave theory, the decibel unit, transmission across a media interface and propagation loss; acoustic beam formation and electronic steering; sonar applications: active sonar versus passive sonar, echo sounders, sidescan sonar, sonobuoys, towed arrays, multiple beam and switching sonar; sonar equations and sonar system effectiveness. Mechanisms for attenuation of light by sea-water, the extra-low frequency and blue transmission windows; airborne mapping of coastal waters: the Nd:YAG infra-red laser, frequency doubling, Q-switching, and the Australian (LADS) and US (ABS) systems.

**ZPEM2510****Electrical Engineering Physics 2**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr H Timmers*Prerequisite/s:* Enrolment in Program 4422

The electrodynamic field concept and Maxwell's theory are fundamental to electrical engineering, while modern opto-electronic devices such as semiconductor diodes and transistors can only be understood within a quantum-mechanical approach. Building on the first-year engineering physics programme this course introduces the foundations of electrodynamics and presents basic concepts of quantum mechanics. This includes the following topics: charge distributions, field concept, Coulomb force, Gauss' law, Stokes' law, integral representations of Maxwell's equations, differential representations of Maxwell's equations, vector algebra and analysis, differential operators, conductors and dielectrics, boundary conditions, current density, conductivity, Biot-Savart Law, Ampere's law, scalar and vector potentials, Faraday's law, plane-wave propagation; limits of classical physics, one-dimensional Schroedinger equation, wave function, eigen functions, expectation values, one-dimensional potential wells, tunneling, band structure. The course content is applied in two assessed laboratory sessions and in two workshops which focus on problem-solving.

**ZPEM2511****Introductory Meteorology AV**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr D Low*Prerequisite/s:* ZPEM1303, ZPEM1304, ZPEM1503,  
ZPEM1504*Exclusion/s:* ZGEN2402, ZPEM2506,  
ZPEM3527, ZPEM4505

A selection of the following will be explored: the atmosphere (composition; density, pressure and temperature; variations with altitude, principal layers; hydrostatic equation; altimetry). Thermal/moisture processes (properties of dry and moist air, phase changes, latent heat; long- and short-wave radiation; heat flows, energy balance; development of temperature gradients and thermal circulations). Stability ('parcel' model of stability, dry and moist adiabatic processes, the aerological (F160) diagram; temperature inversions). Clouds (cloud classification, formation and location). Precipitation (types of precipitation and relation to cloud type; droplet formation and growth). Wind (meteorologically significant forces, equations of motion, geostrophic and gradient flows; variations with height and time). Meteorological practice (terminology, instruments, observations, forecasts).

**ZPEM2512****Aviation Meteorology AV**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr A Drake*Prerequisite/s:* ZPEM2506 or ZPEM2511 or  
ZPEM3527 or ZPEM4505*Exclusion/s:* ZGEN2402

This course builds on ZPEM2511 *Introductory Meteorology AV* to develop knowledge and understanding of weather phenomena of significance to aviation, and of meteorological information products provided for aviators. The topics covered are: the global circulation, large-scale weather systems in mid-latitudes and the tropics, high-altitude meteorology, fronts, thunderstorms, local weather phenomena, icing, visibility, turbulence, and wind shear. The meteorological services available to aviators, and the terminologies and message code used in aviation weather forecasts, are also introduced, and climatic conditions for some key Australian airports summarised.

**ZPEM3101****Inorganic Chemistry 3**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Prof G Jackson*Prerequisite/s:* ZPEM2101, ZPEM2102,  
ZPEM2103, ZPEM2109

This course comprises two topics of approximately equal weight. Molecular Architecture - elementary considerations of symmetry and formal classifications of molecules based on their symmetry elements and operations; spatial relationships between atoms or groups of atoms. Structures such as the amazing C<sub>60</sub> molecule, the intricate polymer DNA, selected inorganic and organic coupled-ring systems, helical molecules, molecular knots, and chemical curiosities such as spirane and cubane are also described. Macrocyclic coordination chemistry: synthetic and naturally occurring macrocyclic ligands; binding of metals and anions; cyclodextrins; host-guest chemistry; supramolecular self-assembly; industrial, biological, medical and other applications.

**ZPEM3102****Organic Chemistry 3**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

NOT OFFERED IN 2006

*Staff Contact:* School Office*Prerequisite/s:* ZPEM2101, ZPEM2102,  
ZPEM2103, ZPEM2109

Organic chemistry has always pondered these questions: What is this compound? How and why does it react? How can I make it? However, the way in which we answer these questions is continually changing with our increasing technological skills. We will build on the skills from ZPEM2102 *Organic Chemistry 2* in a course based on solving practical and theoretical problems. To answer these questions we will delve into spectroscopic problem solving, introduce molecular orbitals and use them to predict compound reactivity. Finally retrosynthetic analysis will be employed as a tool in developing synthetic pathways for a range of organic molecules.

**ZPEM3103****Physical Chemistry 3**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Assoc Prof H Riesen*Prerequisite/s:* ZPEM2101, ZPEM2102,  
ZPEM2103, ZPEM2109

Two major explanatory theories of physical chemistry, quantum theory and statistical theory, are studied in equal parts in this subject: (i) An introduction to spectroscopy and quantum chemistry, and their use in determining the

energies, structures, dimensions and other properties of individual molecules. (ii) An introduction to the behaviour of assemblies of molecules using statistical mechanics applied to fluids to explain structure from intermolecular forces and thermodynamic properties. The laboratory work includes spectroscopic experiments for the determination of molecular energies and dimensions, comparing results with theoretical calculations.

**ZPEM3106****Biological Chemistry**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S2 on-campus

*Staff Contact:* Assoc Prof G Collins*Prerequisite/s:* ZPEM2101, ZPEM2102,  
ZPEM2103, ZPEM2109

The composition, structure and reactivity of enzymes are studied. The enhancement of reactivity in enzymic reactions, from both a kinetic and mechanistic viewpoint, and methods of enzyme inhibition are discussed. The structure and function of DNA is then examined. Topics covered include replication, transcription, translation, and gene regulation. The second part of the course covers general aspects of the inorganic chemistry of biological systems, in particular the roles of metal ions in biological processes, eg. the function of iron in haemoglobin and myoglobin is elaborated. Techniques discussed include X-ray structure analysis, EXAFS, electron paramagnetic resonance (EPR) and luminescence spectroscopy.

**ZPEM3107****Explosives**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S2 on-campus

*Staff Contact:* Dr L Wallace*Prerequisite/s:* ZPEM2101, ZPEM2102,  
ZPEM2103, ZPEM2109

History of energetic materials: black powder to modern explosives. Free radical mechanisms of fuel oxidation and explosive combustion. Thermal explosions. Thermodynamic methods for obtaining maximum temperatures and pressures of explosions. Decomposition and detonation mechanisms and models for energetic materials. Techniques for investigating very fast reactions. Collision and activated complex theories of reaction kinetics. Insensitive munitions. Classification of explosives. Manufacture, properties and applications of military and commercial explosives. Physical and chemical methods of explosives detection.

**ZPEM3109****Polymeric Materials**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

Not offered in 2006

*Staff Contact:* School Office

*Prerequisite/s:* ZPEM2101, ZPEM2102,  
ZPEM2103, ZPEM2109

Artificial macromolecules are of great importance. Synthetic methods of polymerisation are defined and illustrated through examples such as polyethylene, synthetic rubbers, silicones, nylons, epoxy resins and carbon-fibre reinforced plastics. The degradation of polymers is also discussed. Some fundamental aspects of polymer solutions and melts are also explored, e.g. polymer statistics are related to viscosity and light-scattering experiments.

**ZPEM3202****Cultural Geography**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S2 on-campus

*Staff Contact:* Dr S Sharpe

Do sex, sport and humour serve as domains in which different cultures can communicate? Or are they sites of cultural division? Cultural geography approaches such questions by examining the way meaning is constructed according to the role of space and place. This course introduces students to the sub-discipline of cultural geography through the meanings attached to three important domains of cultural life: sex, sport and humour. These domains are produced and consumed very differently depending on location. Students will have the opportunity to research their own case study from one of these areas.

**ZPEM3203****Ecological Systems**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S2 on-campus

*Staff Contact:* Dr D Paul

The structure and function of ecosystems and factors leading to ecosystem change are examined in this course. Particular emphasis is given to one or more of the following: mountain ecology, coastal ecology, arid-zone ecology, landscape ecology, island ecology, and wildlife ecology. Other ecological systems and their management may be emphasised.

**ZPEM3204****Environmental Hazards**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Dr A Griffin

*Prerequisite/s:* ZPEM1201 or ZPEM1202

This course will look at both natural and human-induced environmental hazards and what their study can tell us about how humans interact with the environment. We will look at how a number of concepts (e.g. privilege/poverty; time/change; scale/intensity; risk/vulnerability) can inform our understanding of both hazards and institutional reactions thereto. As members of the ADF, it is quite likely at some point you will be involved in a relief operation either in Australia or overseas. An understanding of the nature of hazards, hazard mitigation and emergency management will help to prepare you for participation in these activities.

**ZPEM3207****Making Decisions in Geography**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Prof B Lees

This course provides a practical introduction to the use of remote sensing, geographic information systems and spatial modelling using digital geographic data to support decision making. The practical exercises take the form of an Environmental Impact Study of a small coastal catchment. On the satisfactory completion of the course, students will have built spatial models of hydrology, erosion, conservation, wildlife habitat, forest, agriculture, fire and economy, and integrated these components within the geographic information system. Lectures will develop a solid understanding of the principles involved in the practical work.

**ZPEM3208****Geographic Research Methods**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S2 on-campus

*Staff Contact:* Assoc Prof J Croke

*Prerequisite/s:* ZPEM1201 or ZPEM1202

Research frameworks in geography. Topic definition, theory and methodology. Practicalities of data collection and field work. Data analysis and interpretation. Reporting research findings. Applications of geographic research. Research ethics. The course provides students with experience in designing and undertaking a field-based geographic research project. The course normally involves a residential field school of approximately six-days duration.

### ZPEM3209

#### Geomorphological Systems

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Assoc Prof J Croke

An examination of the movement of sediments and solutes in geomorphic systems, including hillslope, fluvial and coastal systems. The course focuses on the processes which control the transport of sediments and solutes and the landforms which result from it.

Contemporary environment and management issues in geomorphic systems will be highlighted. Processes and landforms in arid and semi-arid, cold-climate and karst environments may be emphasised in any one year.

### ZPEM3213

#### Resource Management

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Prerequisite/s:* ZPEM1201 or ZPEM1202

The course is concerned with the analysis, allocation and management of natural resources. It involves understanding the characteristics of resources; what is involved in their allocation, and, how they are managed. Case studies are examined in parts of the course.

### ZPEM3215

#### Transport Geography

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Dr P Tranter

The course explores different approaches to the geographical study of transport. It deals mainly with the transport of people in urban areas, and concentrates on specific issues within transport geography (e.g. transport planning, quality-of-life issues, environmental concerns, road safety and political decision making). A key theme in the course is reciprocal relationships between transport and all aspects of environment (physical, economic, social and political). This theme is illustrated through a range of examples, including high-speed rail projects, light-rail systems, traffic calming in European and Australian cities, and new road building.

### ZPEM3301

#### Applied Mathematical Techniques

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2.5

S1 on-campus

*Staff Contact:* Prof R Sammut

*Prerequisite/s:* ZPEM2301 and ZPEM2303

This course introduces a variety of techniques, mainly dealing with mathematical problems that do not have exact analytical solutions. Topics may be selected from the following: perturbation theory; bifurcation; dynamical systems; asymptotics; calculus of variations; integral transforms; integral equations; comparison theorems.

### ZPEM3302

#### Complex Variables

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2.5

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Prerequisite/s:* ZPEM1301 and ZPEM1302

The extension of basic calculus into the complex plane leads to some of the most beautiful (and sometimes surprising) results in Mathematics. After revising the basic properties of complex numbers, this course looks at how familiar concepts such as functions, derivatives and integrals are defined and evaluated in the complex plane. Specific topics include: analytic functions, the Cauchy-Riemann equations, complex line integrals, Cauchy's theorem and integral formulae, Laurent series, the Residue theorem, evaluation of real integrals by contour integration, and elementary functions as mappings.

### ZPEM3304

#### Projectiles

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2.5

S1 on-campus

*Staff Contact:* Assoc Prof R Weber

*Prerequisite/s:* ZPEM2301 and ZPEM2303

This course will consider the motion of projectiles from a mathematical point of view. The major forces, namely gravity, drag and lift, will be included in progressively more sophisticated models of projectile motion, with an emphasis on being able to determine numerical values for all relevant parameters and on calculating complete trajectories. Advanced topics, such as the effect of the Coriolis force and the fluid-mechanical origin of drag and lift, will also be included. Analytical and numerical techniques will be used, and there will be considerable discussion of the application to projectiles in sport.

**ZPEM3305****Projects**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC3 HPW2.5

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Prerequisite/s:* ZPEM2301 and ZPEM2303

A short introduction to mathematical modelling; the skills required, possible strategies. Occasional lectures on particular problems, with emphasis on the way in which the problems were translated into mathematical form. Practical experience in setting up and using mathematical models: students work alone or in small groups. Regular reports and conferences with project supervisors are required. At the conclusion each student must make a formal presentation and submit a written report.

**ZPEM3306****Fluid Mechanics**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2.5

S2 on-campus

*Staff Contact:* Assoc Prof R Weber

*Prerequisite/s:* ZPEM2301 and ZPEM2303

Approaches to the study of fluid flow from the mathematical point of view of solving differential equations and approximating governing equations in limiting cases where viscosity is dominant or negligible. Applications from: aerodynamics, boundary layers, instability, lubrication, meteorology, swimming of micro-organisms, vortices and waves in fluids.

**ZPEM3307****Waves**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2.5

S2 on-campus

*Staff Contact:* Dr P McIntyre

*Prerequisite/s:* ZPEM2301 and ZPEM2303

An introduction to the mathematical description of waves. Theory and physical intuition are developed using simple examples such as waves on strings. More complex systems are then examined, including sound waves, light waves and water waves in a variety of applications.

**ZPEM3308****Biological Mathematics**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2.5

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Prerequisite/s:* ZPEM1302

The current scientific literature shows how extensively different types of mathematics can be applied to biology and medicine. This course considers recent developments in a selection of these areas. Possible topics include: how size matters in insect flight or in how animals jump; scale effects in animal physiology and body design; fractal structures in nature; emerging infectious diseases and strategies to reduce their spread; metabolic processes including poisons, drugs in sport, blood glucose and insulin, and the nonlinear kinetics of enzymes.

**ZPEM3309****Elements of Optimisation**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2.5

S2 on-campus

*Staff Contact:* Dr G Mercer

*Prerequisite/s:* ZPEM2301 and ZPEM2303

Optimisation can be thought of as the process of minimising costs or maximising benefits, or finding the best possible compromise between the two. It is an important tool in decision-making, and there is even a theory that the structures of animals, their movement and behaviour, have been influenced by optimisation through evolution. In this course we develop some of the mathematics that deals with different aspects of optimisation, with and without constraints. Specific topics include: maxima and minima of functions of several variables, linear programming, the calculus of variations, network flows, transportation and allocation problems.

**ZPEM3310****Financial Mathematics**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2.5

NOT OFFERED IN 2006

*Staff Contact:* Dr M Collins

*Prerequisite/s:* ZPEM1301 and ZPEM1302

Financial mathematics is primarily concerned with the pricing of products known as 'financial derivatives' and is currently one of the most active areas of applied mathematics. Derivatives are products whose value is derived from the value of an underlying asset such as stock, an ounce of gold or a foreign currency. This course introduces various financial products such as bonds, bills and stocks as well as financial derivatives futures and options.



We examine how these products are priced and traded. We also examine how 'arbitrage' (certain profit) opportunities can arise. Part of the course involves following the progress of a portfolio of ASX stocks and bonds.

**ZPEM3311****Mathematical Methods for Differential Equations**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Dr H Sidhu

*Prerequisite/s:* ZPEM2301 and ZPEM2303

A variety of methods for solving ordinary and partial differential equations are considered. Examples and applications used to motivate the course will be drawn from areas such as solid and fluid mechanics, electrical circuits, pattern formation, heat and river pollution. The types of problems and methods of solution considered may include: systems of differential equations (including phase-plane analysis), boundary-value problems, partial differential equations and elementary perturbation analysis. Computational methods for solution of ordinary and partial differential equations will be introduced and software packages will be used to implement the algorithms and visualise the results.

**ZPEM3312****Nonlinear Systems**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2.5

S2 on-campus

*Staff Contact:* Dr H Sidhu

*Prerequisite/s:* ZPEM2301 and ZPEM2303

Nonlinear phenomena and complex behaviour are encountered in many real-world systems (such as oscillations in chemical reactions, fibrillation of the heart, spread of disease, spontaneous ignition and market volatility). This course examines the questions of whether we can still predict the behaviour of such systems and how this behaviour changes as the parameters of the system are varied. Topics covered may include nonlinear algebraic equations, first-order ordinary differential equations (equilibrium points, stability and bifurcation), systems of ordinary differential equations (phase-plane analysis), the origins of oscillatory behaviour and an introduction to chaotic systems.

**ZPEM3320****Special Topic 3A**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

This course is available for the presentation of a specialist topic by a visiting member of staff or for presenting a lecture course on a trial basis.

**ZPEM3321****Special Topic 3B**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

This course is available for the presentation of a specialist topic by a visiting member of staff or for presenting a lecture course on a trial basis.

**ZPEM3325****Engineering Mathematics 3**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC4 HPW4

NOT OFFERED IN 2006

*Staff Contact:* Dr S Barry

*Note:* This course is only available to those students who were enrolled previously, but are required to re-enrol in 2006.

This course covers two distinct areas of importance for applications in engineering. The Differential Equations component includes: separation of variables for partial differential equations in cylindrical and spherical coordinates, arising from the wave equation, Laplace's equation and the heat equation; Bessel and Legendre functions; understanding of where partial differential equations arise, and how one can interpret and simplify these equations using proper non-dimensionalisation techniques; modelling and solution of applicable industrial problems. The statistics component gives an introduction to the analysis of data, covering the basics of estimation and hypothesis testing, using data from engineering and the sciences.

**ZPEM3400****Special Program (Oceanography)**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* School Office

This course is available for the presentation of a specialist topic by a visiting member of staff or for presenting a lecture course on a trial basis.

**ZPEM3401****Ocean Circulation and Mixing**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW5

S1 on-campus

*Staff Contact:* Dr A Kiss*Prerequisite/s:* ZPEM2401 and ZPEM2402

This course examines the dynamics of large-scale wind-driven ocean currents. The course aims to explain why there is a broad equator-ward flow in all the major ocean basins, except the Southern Ocean, and why there are strong, poleward-flowing boundary currents such as the Gulf Stream and the East Australia Current on the western boundaries. The production of turbulence in the oceans and its role in mixing is also examined. The discussion of mixing in the ocean normally includes Kolmogoroff and Batchelor lengths, molecular mixing and diffusive boundary layers; the logarithmic boundary layer and mixing lengths; vertical mixing by wind and tidal stirring; dispersion in the ocean, its measurement, and the Taylor mechanism.

**ZPEM3402****Continental Shelf Dynamics**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr A Kiss*Prerequisite/s:* ZPEM2401 and ZPEM2402

The course examines wind-driven currents on continental shelves where the presence of a land boundary places significant constraints on the circulation. Topics covered may include the steady response to cross-shore winds, coastal trapped waves and storm surges.

**ZPEM3403****Oceanographic Data Acquisition and Analysis**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr H Wang*Prerequisite/s:* ZPEM2401 and ZPEM2402

A discussion of the range of instrumentation and measuring techniques used in obtaining oceanographic observations. Both traditional and modern technologies and methods are examined, including satellite remote sensing. Introduction to commonly used time-series analysis tools used in analysing oceanographic data. This includes lagged-correlation, digital filtering and spectral analysis. Both theory and applications are considered.

**ZPEM3404****Internal Waves**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr J Taylor*Prerequisite/s:* ZPEM2401

Just as waves occur on the surface of the ocean, they occur in its interior. Wherever the density is increasing with depth there may be "internal gravity waves" which result in up-and-down motion of density surfaces and are important in ocean mixing, bottom currents and acoustic propagation. Acoustic waves can propagate throughout the ocean and are the main technique for remotely sensing the ocean interior. This course examines the dynamics, generation and propagation of internal gravity waves and their impact on the ocean environment. We also examine the ways in which acoustic remote sensing is used to study the ocean interior and bottom.

**ZPEM3405****Oceanography Research Report**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr H Wang*Prerequisite/s:* ZPEM2401 and ZPEM2402

The course of study aims to develop students' understanding of a particular facet of Oceanography through the preparation of a presentation and report. Students are introduced to basic research methodologies and techniques, and are required to consider effective ways of communicating the knowledge they acquire in a specialised area.

**ZPEM3406****Regional Oceanography**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S2 on-campus

*Staff Contact:* Dr H Wang*Prerequisite/s:* ZPEM2401 and ZPEM2402

Oceanography of the Australian region including the major current systems, such as the East Australia Current and the Leeuwin Current, and their influence on coastal communities, fisheries, climate and marine ecology. Regions outside Australian waters may also be considered. The dynamics of estuaries, embayments and lagoons, and modelling of their flushing times and mixing regimes, in relation to the environmental quality of the land-sea margins.

**ZPEM3407****Oceanography Research Project**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

S2 on-campus

*Staff Contact:* Dr H Wang*Prerequisite/s:* ZPEM2401 and ZPEM2402

The project aims to broaden students understanding of a particular aspect of Oceanography through consideration and analysis of a small body of data. Students' research skills, methodologies and planning abilities are extended as they examine a topic of particular interest and prepare their interpretation/comment for presentation.

**ZPEM3501****Atmospheric Dynamics**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

S2 on-campus

*Staff Contact:* Dr D Low*Prerequisite/s:* ZPEM2501, ZPEM2502, ZPEM2503, ZPEM2506

The weather we experience from day to day is largely a result of the interaction of large-scale dynamical processes occurring on continental scales (the domain of synoptic meteorology) and the small-scale physics of clouds and precipitation. Students are introduced to these weather processes and their forecasting through the study of a selection from the following topics: the meteorological equations of motion and the vorticity equation; geostrophic winds; vorticity conservation; diagnosis of vertical motion using atmospheric vorticity and ageostrophic motion; synoptic-scale weather systems in the Australian region; cloud formation; the microphysics of water droplet and ice-crystal formation and growth in clouds; water and ice precipitation; the global atmospheric observing system; the assimilation of meteorological data.

**ZPEM3502****Cosmology and Relativistic Astrophysics**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

S1 on-campus

*Staff Contact:* Assoc Prof R Sood*Prerequisite/s:* ZPEM2501, ZPEM2502, ZPEM2503, ZPEM2506

This course is divided into two parts. The first part deals with the origin and evolution of the Universe. Topics discussed in this part include the following: structure of the Universe; relativistic cosmology; the Big Bang and the very early Universe; matter distribution in the Universe, dark matter and dark energy; the cosmic microwave background radiation. The second part of the course deals with dense states of cosmic matter, and includes a discussion of the formation and nature of white dwarfs, neutron stars and black holes.

**ZPEM3503****Electromagnetic Remote Sensing**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

S2 on-campus

*Staff Contact:* Dr R Smith*Prerequisite/s:* ZPEM2501, ZPEM2502, ZPEM2503, ZPEM2506

The course can be summed up in two words, propagation and interaction. Imagine any remote sensing situation involving electromagnetic radiation: a radar system is an obvious example with extensive civilian and military applications. The important processes are the propagation of the radiation to and from the object being sensed, the interaction of this radiation with the medium it is propagating through and its interaction with the material the object is made of. This need not to be confined to propagation between an antenna and a target. Before it reaches the antenna the radiation must pass through cables and waveguides which again involve propagation and interaction. Fundamental to all this are Maxwell's equations, and it is important to reach an understanding of what they can tell us about the propagation and interaction of electromagnetic radiation.

**ZPEM3504****Physics of Advanced Materials**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

S1 on-campus

*Staff Contact:* Dr W Hutchison*Prerequisite/s:* ZPEM2501, ZPEM2502, ZPEM2503, ZPEM2506

This course provides a comprehensive introduction to the use of materials in contributing to the quality and continuing development of our society and environment. The crystal structures of technologically important materials will be described; principles and applications of x-ray and neutron diffraction in determining crystal and magnetic structures; summary of the various types of structural states (such as polycrystalline, nanostructured, amorphous); phase diagrams relating to microstructure and mechanical properties; origins of different types of magnetic behaviour and properties of magnetic materials; basic theories of diamagnetism, paramagnetism and ferromagnetism. The applications of magnetic materials - their use in permanent magnets, transformers and information storage - magnetic disks and tapes and magneto-optical data storage.

**ZPEM3521****Experimental Physics-Laboratory**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW4

S1 on-campus

*Staff Contact:* Dr G Robinson*Prerequisite/s:* ZPEM2501, ZPEM2502,  
ZPEM2503, ZPEM2506

Students will carry out a selection of laboratory experiments which range from basic physics through to applications of direct relevance to the Australian Defence Force. At least some of the experiments available for selection will be designed to complement the lecture courses on offer in Level III Physics.

**ZPEM3522****Experimental Physics-Project**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW4

S2 on-campus

*Staff Contact:* Dr G Robinson*Prerequisite/s:* ZPEM2501, ZPEM2502,  
ZPEM2503, ZPEM2506

This will be in the form of a research project which each student will conduct in collaboration with a member of the academic staff. Many of the topics offered are designed to be of relevance to the Australian Defence Force. However, project topics related to other areas of interest to staff and/or students may be chosen.

**ZPEM3523****Infrared and Laser Technology**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office*Prerequisite/s:* ZPEM2501, ZPEM2502,  
ZPEM2503, ZPEM2506

Infrared technology: from motion sensors to night vision scopes; although we can't see it infrared radiation plays a role in our everyday life. Historically, this field owes much to the research that was carried out to develop the many military applications of infrared technology. However, there is also a history of fundamental physics behind it which needs to be understood to use this technology. The atmosphere also plays a role. Infrared radiation also needs specialised detectors which lead us into solid-state physics and they often need cooling, which leads us into the field of cryogenics. All these contribute to the infrared technology which we use today. Laser technology: from low-power semiconductor lasers in CD and DVD players, to high power gas lasers used in material processing, lasers are ubiquitous.

In this part of the course we investigate the special properties of laser light which makes lasers such versatile devices; how and under what conditions a laser operates and the practical aspects of the design of lasers. We also look at how the light and operation of a laser can be manipulated to tailor it to specific applications.

**ZPEM3524****Navigation and Guidance Physics**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

S2 on-campus

*Staff Contact:* Assoc Prof R Sood*Prerequisite/s:* ZPEM2501, ZPEM2502,  
ZPEM2503, ZPEM2506

This course examines the scientific fundamentals of navigation systems and their use in the guidance of machines and humans. The course is of particular relevance in military applications. However, it is developed from the point of view of the scientific principles involved, and their applications in the military, civilian and research environments. All navigation systems require accurate time-keeping capability, coordinate reference definition, and information coding, transmission and interpretation. These concepts are examined in the areas of celestial navigation, underwater navigation, and old and new satellite-based navigation, including a detailed study of GPS systems. Inertial navigation and guidance is of primary importance in aircraft and weapon guidance. The science of inertial navigation systems is studied. Finally, the techniques involved in integrating inertial, celestial and GPS systems to produce state-of-the-art navigation and guidance capability are discussed.

**ZPEM3527****Atmospheric Physics and Meteorology**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr D Low*Prerequisite/s:* ZPEM1303, ZPEM1304,  
ZPEM1503, ZPEM1504*Exclusion/s:* ZGEN2402, ZPEM2506,  
ZPEM2511, ZPEM4505

A selection of the following will be explored: the atmosphere (composition; density, pressure and temperature; variations with altitude, principal layers; hydrostatic equation; altimetry). Thermal/moisture processes (properties of dry and moist air, phase changes, latent heat; long- and short-wave radiation; heat flows, energy balance; development of temperature gradients and thermal circulations). Stability (parcel model of stability, dry and moist adiabatic processes, the aerological (F160) diagram; temperature inversions). Clouds (cloud classification, formation and location). Precipitation (types of precipitation and relation to cloud type; droplet formation and growth). Wind (meteorologically significant forces, equations of motion, geostrophic and gradient flows; variations with height and time). Meteorological practice (terminology, instruments, observations, forecasts).

### **ZPEM3528**

#### **Thermodynamics and Propulsion**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

S1 on-campus

*Staff Contact:* Dr G Robinson

*Prerequisite/s:* ZPEM2501, ZPEM2502,  
ZPEM2503, ZPEM2506

The course begins with a discussion of the laws of thermodynamics and entropy. Heat transfer and engine cycles, as employed in vehicle propulsion will then be considered. Examples of these include the Carnot, Otto, Diesel, Stirling, Rankine and gas turbine cycles. Additional topics to be treated may be selected from the following: rockets and related aspects of aerospace propulsion; electromagnetic propulsion; fundamentals of fuel cells; chemical, liquid and solid fuels; and explosive propulsion.

### **ZPEM3529**

#### **Occasional Physics Elective**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

*Prerequisite/s:* ZPEM2501, ZPEM2502,  
ZPEM2503, ZPEM2506

The syllabus for this course changes from one occasion to the next, allowing for the presentation of a current topic by a visiting academic or a special lecture course on a trial basis.

### **ZPEM4101**

#### **Chemistry 4 (Honours) Full-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* Assoc Prof G Collins

The Honours course consists of study in a specialised field (or fields) of Chemistry. There is a major research project component and a course work component, usually of three 15-hour lecture segments.

### **ZPEM4102**

#### **Chemistry 4 (Honours) Part-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Assoc Prof G Collins

The Honours course consists of study in a specialised field (or fields) of Chemistry. There is a major research project component and a course work component, usually of three 15-hour lecture segments.

### **ZPEM4103**

#### **Chemistry 4 (Combined Honours) Full-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* Assoc Prof G Collins

In the Combined Honours program, candidates are required to present a thesis on a research project that combines Chemistry with another discipline, the project being supervised and examined by the two disciplines conjointly. In addition, candidates are required to complete such course work as is approved by the Head of School.

### **ZPEM4104**

#### **Chemistry 4 (Combined Honours) Part-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Assoc Prof G Collins

In the Combined Honours program, candidates are required to present a thesis on a research project that combines Chemistry with another discipline, the project being supervised and examined by the two disciplines conjointly. In addition, candidates are required to complete such course work as is approved by the Head of School.

### **ZPEM4201**

#### **Geography 4 (Honours) Full-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* School Office

Candidates for Honours in Geography are required to (a) prepare a thesis of approximately 15,000 words in length; (b) undertake coursework as prescribed by the School; (c) present work-in-progress seminars; and (d) attend seminars related to the applications of geographic research.

**ZPEM4202****Geography 4 (Honours) Part-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* School Office

Candidates for Honours in Geography are required to (a) prepare a thesis of approximately 15,000 words in length; (b) undertake coursework as prescribed by the School; (c) present work-in-progress seminars; and (d) attend seminars related to the applications of geographic research.

**ZPEM4203****Geography 4 (Combined Honours) Full-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* School Office

In the Combined Honours program candidates are required to present a thesis or research project on a topic that is concerned with Geography and the interests of the other disciplines involved, the thesis or project being supervised and examined by the two disciplines conjointly. In addition, candidates are required to complete coursework as approved by the Head of School.

**ZPEM4204****Geography 4 (Combined Honours) Part-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC6

S1 on-campus, S2 on-campus

*Staff Contact:* School Office

In the Combined Honours program candidates are required to present a thesis or research project on a topic that is concerned with Geography and the interests of the other discipline involved, the thesis or project being supervised and examined by the two disciplines conjointly. In addition, candidates are required to complete coursework as approved by the Head of School.

**ZPEM4301****Mathematics 4 (Honours) Full-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* Assoc Prof R Weber

Specialised study in selected topics, together with an approved project in the area in which the honours program is concentrated.

**ZPEM4302****Mathematics 4 (Honours) Part-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Assoc Prof R Weber

Specialised study in selected topics, together with an approved project in the area in which the honours program is concentrated.

**ZPEM4303****Mathematics 4 (Combined Honours) Full-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Assoc Prof R Weber

In the Combined Honours program candidates are required to present a thesis or research project on a topic that is concerned with Mathematics and the interests of the other discipline involved, the thesis or project being supervised and examined by the two disciplines conjointly. In addition, candidates are required to complete course work as approved by the Head of School.

**ZPEM4304****Mathematics 4 (Combined Honours) Part-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC6

S1 on-campus, S2 on-campus

*Staff Contact:* Assoc Prof R Weber

In the Combined Honours program candidates are required to present a thesis or research project on a topic that is concerned with Mathematics and the interests of the other School involved, the thesis or project being supervised and examined by the two Schools conjointly. In addition, candidates are required to complete course work as approved by the Head of School.

**ZPEM4401****Oceanography 4 (Honours) Full-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* School Office

Candidates for Honours in Oceanography are required to (a) prepare a thesis of approximately 15,000 words in length; (b) undertake coursework as prescribed by the School; (c) present work-in-progress seminars; and (d) attend seminars related to the applications of oceanographic research.

**ZPEM4402****Oceanography 4 (Honours) Part-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* School Office

Candidates for Honours in Oceanography are required to (a) prepare a thesis of approximately 15,000 words in length; (b) undertake coursework as prescribed by the School; (c) present work-in-progress seminars; and (d) attend seminars related to the applications of oceanographic research.

**ZPEM4403****Oceanography 4 (Combined Honours) Full-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Dr H Wang

In the Combined Honours program candidates are required to present a thesis or research project on a topic that is concerned with Oceanography and the interests of the other discipline involved, the thesis or project being supervised and examined by the two disciplines conjointly. In addition, candidates are required to complete coursework as approved by the Head of School.

**ZPEM4404****Oceanography 4 (Combined Honours) Part-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC6

S1 on-campus, S2 on-campus

*Staff Contact:* Dr H Wang

In the Combined Honours program candidates are required to present a thesis or research project on a topic that is concerned with Oceanography and the interests of the other discipline involved, the thesis or project being supervised and examined by the two disciplines conjointly. In addition, candidates are required to complete coursework as approved by the Head of School.

**ZPEM4501****Physics 4 (Honours) Full-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC24 HPW4

S1 on-campus, S2 on-campus

*Staff Contact:* Assoc Prof R Sood

Students undertake both coursework and a research project. The research project, selected from topics proposed by academic staff, occupies about half the available Honours year time; a thesis and oral report are required. The four coursework components are selected from the following: Astrophysics; Experimental Magnetism; Meteorological Remote Sensing; Microcomputer Applications; Small-Scale Atmospheric Motions; Solid-State Physics; Chaos and Statistical Mechanics; Stellar Physics.

**ZPEM4502****Physics 4 (Honours) Part-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC12 HPW2

S1 on-campus, S2 on-campus

*Staff Contact:* Assoc Prof R Sood

Students undertake both coursework and a research project. The research project, selected from topics proposed by academic staff, occupies about half the available Honours year time; a thesis and oral report are required. The four coursework components are selected from the following: Astrophysics; Experimental Magnetism; Meteorological Remote Sensing; Microcomputer Applications; Small-Scale Atmospheric Motions; Solid-State Physics; Chaos and Statistical Mechanics; Stellar Physics.

**ZPEM4503****Physics (Combined Honours) Full-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC12 HPW4

S1 on-campus, S2 on-campus

*Staff Contact:* Assoc Prof R Sood

Students undertake both coursework and a research project. The research project, selected from topics proposed by academic staff, occupies about half the available Honours year time; a thesis and oral report are required. The four coursework components are selected from the following: Astrophysics; Experimental Magnetism; Meteorological Remote Sensing; Microcomputer Applications; Small-Scale Atmospheric Motions; Solid-State Physics; Chaos and Statistical Mechanics; Stellar Physics.

**ZPEM4504****Physics 4 (Combined Honours) Part-Time**

UC Physical, Environmental and Mathematical Sciences

Enrolment requires School approval

UOC6 HPW2

S1 on-campus, S2 on-campus

*Staff Contact:* Assoc Prof R Sood

Students undertake both coursework and a research project. The research project, a selection of topics proposed by academic staff, occupies about half the available Honours year time; a thesis and oral report are required. The four coursework components are selected from the following: Astrophysics; Experimental Magnetism; Meteorological Remote Sensing; Microcomputer Applications; Small-Scale Atmospheric Motions; Solid-State Physics; Chaos and Statistical Mechanics; Stellar Physics. Combined Honours students undertake a research project on a topic incorporating Physics and the other discipline. The project is supervised and examined jointly by both disciplines. Students are required to complete coursework, comprising two of the above courses and the equivalent from the other discipline.

**ZPEM4505****Meteorology and Applications**

UC Physical, Environmental and Mathematical Sciences

UOC3 HPW3

S1 on-campus

*Staff Contact:* Dr D Low

This course will explore the thermodynamics and kinematics of atmospheric processes, and their relevance to the world we live in. The lecture material covers three main categories: atmospheric physics, including composition, scales, altimetry, and hydrostatic balance; behaviours in the vertical dimension, including dry and moist adiabatic processes, stability, convection, clouds, and precipitation; and behaviour in the horizontal dimension, including geostrophic balance, gradient winds, thermal winds, advection, and forecasting.



# POSTGRADUATE COURSEWORK INFORMATION

## Essential Preparation for University – before you arrive at ADFA

All new postgraduate students should complete the following steps before arriving at ADFA:

### Step 1 – Understand your program rules

Read the Degree Rules for the postgraduate coursework program you are undertaking (these can be found in this Handbook).

### Step 2 – Course selection

Once you have read the degree rules, think about what courses you would like to study by browsing through the Course Catalogue section of this Handbook.

### Step 3 – Principal dates

Use the “Principal Dates” listed on the inside front cover of this Handbook to note crucial dates and deadlines in your diary. The Census Date for each session is particularly important if you wish to drop a course without incurring any financial or academic penalty.

### Step 4 – Credit for previous study (if applicable)

If you have studied at a University before, please read the section of this Handbook titled “Credit in Postgraduate Coursework Programs” and submit any of the necessary documentation immediately.

## Optional Preparation

The following steps are optional prior to the Postgraduate Orientation Evening. If not completed prior to your arrival, steps 5 to 11 (including issuing your ADFA ID Card) can be completed at the Postgraduate Orientation Evening (see inside cover of the Handbook for these dates).

### Step 5 – Create a UniPass (password)

Use the student ID number and program code contained in your offer letter to create a UniPass (password). You need to create a UniPass to obtain access to *myUNSW*, the University’s Student Portal, your access point for student services and information. The following web site provides you with information about creating a UniPass and logging-in to *myUNSW*:  
[www.unsw.adfa.edu.au/student/commencing](http://www.unsw.adfa.edu.au/student/commencing)

ADFA students need to use two different systems and therefore have two passwords (an ADFAPass and UniPass) to access all of the facilities and services available. Your ADFAPASS is used for accessing your email and course materials in WebCT and gaining access to the other ADFA computing services. Your ADFAPass will be mailed to you once you completed the enrolment process.

### Step 6 – Update your personal details

After you have created a UniPass and activated your student account, you need to review and confirm your *Personal Details* (address, telephone, email etc). Your contact details as previously supplied to the University will be listed and you should check that we have entered your details correctly and update any contact details that may have changed.

The University cannot contact you or send you materials if we do not know where you are. Every time you change one of your contact details (such as your telephone number or address) you need to update your details within seven days of the change occurring.

### Step 7 – Update your personal statistics

After you have created a UniPass and activated your student account, you need to review and confirm your *Personal Statistics* (country of birth, previous qualifications etc).

The University is required by provisions within the *Commonwealth Higher Education Support Act* to collect certain statistical data from all students that are used by the University and the Commonwealth to undertake planning. The data are also aggregated with data submitted by other students and in this form may be published by the Commonwealth (the data that are published do not contain personally identifiable information). Failure to provide this information will result in termination of your enrolment.

### Step 8 - Enrol online

Once you have selected the courses you wish to study (by consulting the ADFA Handbook), you can enrol in your classes online using *myUNSW*. Once you have logged in, select *My Student Profile* and follow the prompts.

### Step 9 - Check your timetable

Select *Class Timetable* in *myUNSW* to view your timetable.

### Step 10 – Set up your student email account

The University uses email as the primary form of communication with students which means that the University does not use letter mail as a matter of course. You will be provided with your own email account. This account can be accessed from any Internet enabled computer.

You can access your email through a web browser at [www.mail.student.adfa.edu.au](http://www.mail.student.adfa.edu.au), where you are prompted to enter your username and password, your username is ‘z’ followed by your student number and your password is your ADFAPASS.

Further information about how to configure your email account is available at [www.unsw.adfa.edu.au/units/ict](http://www.unsw.adfa.edu.au/units/ict)

### Step 11 – Get your ADFA ID card

You need your ADFA card to -

- borrow books from the Library and access online resources
- get the ICTS Helpdesk to change your password etc
- gain access to areas for students only or after hours access by swiping the card at the door
- identify yourself
- attend examinations

If you are on campus, present yourself to the ICTS Helpdesk and have a photo taken. If we can verify that you are a valid student we can give you a card immediately.

If you cannot come to the ICTS Helpdesk, send a passport photo of yourself, together with your student number and contact details, to the ICTS Helpdesk. Please DO NOT send any other type of photo as it cannot be used. The address to post this information to is:

Helpdesk,  
ICT Services, UNSW@ADFA,  
Australian Defence Force Academy,  
Canberra ACT 2600.

Alternatively, you can email a passport photo of yourself, along with your student number and contact details to [helpdesk@adfa.edu.au](mailto:helpdesk@adfa.edu.au). The JPEG file needs the following minimum specifications 328 wide x 370 high in true colour.

In all instances **the card will be mailed to you unless you advise the ICTS Helpdesk that you wish to collect the card.** When you receive your new ADFA card you will also receive a **Personal Identification Number (PIN)** which you may need to access buildings at the Academy.

This number must be kept secure, in the same way that you would treat the PIN for your credit card.

## GENERAL INFORMATION

Postgraduate coursework programs at UNSW@ADFA are well matched to the evolving postgraduate education and professional development environments. The courses within these programs blend a thorough understanding of the knowledge and skills necessary to master a particular discipline area with an appreciation of their practical implications for planning and activities. These programs will have the flexibility to meet the individual needs of advanced postgraduate scholars and of professional officers seeking a robust academic framework to enhance their expertise.

UNSW@ADFA offers five different coursework programs at postgraduate level. These programs are Arts, Defence Studies, Engineering Science, Management Studies, and Science. Each program offers different specialisations or plans. Provision exists in most programs to articulate through a certificate/diploma/masters sequence. The specialised plans within those degrees gives students the opportunity either to focus on a particular area of the discipline or to acquire a more broadly based qualification. New plans can be introduced, or existing plans revised, relatively quickly to meet changing needs.

Alternative modes of delivery are important to meeting student needs. The introduction of courses in Intensive Delivery Mode for RAAF Aerospace Engineering students has been an important initiative. The courses link preparatory reading with a five day residential short course and subsequent assessment tasks supported by flexible learning technologies. UNSW@ADFA will be further developing a flexible suite of delivery modes – on campus, intensive delivery, and by distance – to support its future programs.

For international postgraduate students, an important initiative has been the introduction of a distinct language stream within postgraduate course offerings to complement the existing academic skills program. Students with a limited background of studying in the English language and in the Australian educational environment now have the option, subject to the approval of the Program Authority and the conditions of their candidature, to study up to two courses covering analysis and writing for postgraduates, as part of their degree structure. International students must still, of course, satisfy the University's English language requirements for admission.

Candidates in postgraduate coursework programs are required to attend formal lectures and/or seminars (unless they are studying by distance mode) and, where applicable, submit a project report or sub-thesis. Most programs are usually of two sessions duration full-time or four sessions duration for a part-time program.

Assessment may include assignments, seminar presentations, informal exams or formal exams throughout or at the end of a session/year.

In some programs in any year, course quotas may be imposed. Where possible, candidates will be given notice of quotas. Not all courses are available in each session. Full-time students may be restricted as to course choice or course availability. Not all postgraduate coursework programs can be completed on a full-time basis, or in distance mode.

## Definitions

### Articulation

'Articulation' refers to the process whereby students progress to the next stage of the study in a particular discipline e.g. if a student completes the requirements for the Graduate Diploma and wishes to proceed to a Masters rather than take out the award of Graduate Diploma, they 'articulate' to the Masters in accordance with the requirements laid down by the Postgraduate Coursework Education Committee. Students are given this option in their final session of study of the initial program.

### Credit in postgraduate coursework programs

Credit will not normally be granted for completed postgraduate awards from other institutions. A postgraduate coursework masters or diploma student who is admitted to the University on the basis of either a completed or partially completed postgraduate degree, diploma or certificate from UNSW or partially completed degree, diploma or certificate from another institution may be granted credit up to a maximum of 50% of the UNSW program requirements.

Where courses (subjects) in the Australian Command and Staff College (ACSC) programs are UNSW@ADFA courses they may be credited under general University rules in appropriate programs. Where 12UOC of UNSW@ADFA courses have been completed in the ACSC program 12UOC of unspecified credit can be credited toward any Masters by coursework program at UNSW@ADFA.

No units of credit shall count toward any award if ten or more years have elapsed since a student accumulated the units of credit. Some programs may have a shorter timeframe approved for the awarding of credit.

## Exemption

The term 'exemption' applies to instances where a student is not required to complete a particular course in a program of study as approved by the appropriate authority. The term does not imply that credit has been granted and students will have to complete the normal requirements for their particular program.

## Foundation Courses

'Foundation courses' are courses specifically designed to provide students who have not previously studied a particular discipline area at an advanced undergraduate level with the key concepts and information necessary to support postgraduate study in that area. Each course is worth 6 units of credit (6UOC) towards the award of a Graduate Certificate.

## Academic Standing

Academic Standing, consisting of good standing and several other levels, will be assigned to students at the end of each main session. Movement between levels is based on progress, measured by proportion of load passed (undergraduate), or cumulative number of failures (postgraduate). Research and non-award students do not participate in the Academic Standing scheme. The Program Authority assigns an adviser to each student not in good standing. Continued poor progress can lead to suspension (one year) or exclusion (two years, no auto-readmission).

## Academic Standing Rules for Postgraduate Students

### Levels

Academic standing levels for coursework postgraduate students are

**Good:** the student's current progress is deemed satisfactory. Undefined standing (as when a student is first admitted) is also assumed to be good standing.

**Probation:** the student must consult their assigned adviser, who approves the next session's enrolment.

**Exclusion:** the student is not permitted to enrol for two years, and must reapply for admission after that period.

### Setting Standing Level by Rule

Students are assigned a level of standing based only on the number of units of credit failed throughout the program.

**Good:** No failures.

**Probation:** Up to 16UOC failed, or 18UOC for programs of at least 72UOC in length.

**Exclusion:** More than 16UOC failed (18UOC for longer programs).

## Managing Student Progress - Re-Enrolment Appeal Procedures

In June 2000, the University's Academic Board adopted the following rules governing appeals against suspension or exclusion:

1. Students who are suspended or excluded from a program have the right of appeal. An Undergraduate Re-enrolment Appeal Committee and a Postgraduate Re-Enrolment Appeal Committee of the Academic Board will be constituted for the purpose of hearing such appeals.
2. Each Committee will have a membership of five members of academic staff (with a quorum of three) and will be chaired by a member of the Academic Board nominated by the President. The remaining members of the Committee need not be members of the Academic Board but will be nominated by the President taking into account their relevant experience and expertise. Members will not currently be involved in managing student progress and will disqualify themselves if they have previously been involved in the case of a particular student.
3. The decision of the Committee shall be final.
4. The notification to students that they have been suspended or excluded shall indicate that they may appeal that decision to the relevant Re-Enrolment Appeal Committee. The appeal must be lodged with the Manager, Student Administrative Services within fourteen days of the date of notification; in special circumstances a late appeal may be accepted at the discretion of the chairperson of the Appeal Committee.
5. In lodging such an appeal, students should provide a complete statement of all grounds on which the appeal is based.
6. The Appeal Committee shall determine appeals after consideration of each appellant's academic record and stated grounds of appeal. Students may elect to appear before the Committee and/or be represented.

## Masters by Coursework

The following section contains general information relating to all Masters by coursework programs. Students should also refer to further details of requirements and course schedules under the individual program sections.

### Entry Requirements

A four year degree of Bachelor or Bachelor with Honours in the same or related discipline from The University of New South Wales or equivalent qualification;

or a Graduate Diploma in the same or related discipline from The University of New South Wales or equivalent qualification;

or a three year Bachelor degree at pass level in the same or related discipline from The University of New South Wales, or equivalent qualification, which includes a major in a related field of study together with relevant full-time work experience; or other academic and/or professional qualifications and/or significant work experience of a related nature as may be approved by the Postgraduate Coursework Education Committee.

Notes:

1. "Equivalent qualification" means an equivalent qualification from a tertiary institution at a level acceptable to the Postgraduate Coursework Education Committee.
2. Entry to all Masters programs is subject to the recommendation of the relevant authority.

## Program Structure

Students will be required to complete a minimum of 48 units of credit (48UOC) of coursework from the courses as specified for each program. Each program comprises 8 courses worth 6 units of credit (6UOC) each.

A project course (12UOC) may be undertaken in place of 2 courses (6UOC) subject to students meeting program-specific requirements (as indicated in the individual program entries in this Handbook) and subject to the approval of the program authority.

With the approval of the program authority, students may elect to take up to 12UOC (2 courses) from other postgraduate programs.

In exceptional circumstances, the program authority may give approval for a student to substitute two foundation courses for one course towards a Masters degree.

All study programs are subject to the approval of the program authority.

## Graduate Diplomas

The following section contains general information relating to all Graduate Diploma programs. Students should also refer to further details of requirements and course schedules under the individual program sections.

### Entry Requirements

A Bachelor degree at pass level in the same or related discipline from The University of New South Wales or equivalent qualification;

or a Graduate Certificate in the same or related discipline from The University of New South Wales or equivalent qualification;

or other academic and/or professional qualifications and/or significant work experience of a related nature as may be approved by the Postgraduate Coursework Education Committee.

Notes:

1. "Equivalent qualification" means an equivalent qualification from a tertiary institution at a level acceptable to the Postgraduate Coursework Education Committee.
2. Entry to all Graduate Diploma programs is subject to the approval of the relevant authority.

### Transfer from Masters Program to Graduate Diploma Program (exit point)

An applicant who has obtained suitable units of credit in the equivalent Masters program at UNSW@ADFA but has not taken out the Masters degree may apply to be admitted to a Graduate Diploma or Graduate Certificate program and to be granted credit for work completed in the Masters program.

### Program Structure

Students will be required to complete 36 units of credit (36UOC) of coursework from courses specified for the program. The program comprises 6 courses each of which is worth 6 units of credit (6UOC).

With the approval of the program authority, students may elect to take 6UOC (one course) from another postgraduate program. Candidates for the Graduate Diploma may not include both credit for foundation courses undertaken in a Graduate Certificate program and a course from another postgraduate program within the minimum 36UOC required for the award.

In exceptional circumstances, the program authority may give approval for a student to substitute two foundation courses for one course towards a Graduate Diploma.

All study programs are subject to the approval of the appropriate program authority.

### Articulation from a Graduate Diploma to a Masters Program

Students who have completed the requirements for a Graduate Diploma at UNSW@ADFA but have not taken out the qualification are eligible to apply for articulated entry into the related Masters program within 4 years of completion of the Graduate Diploma requirements. Normally such students will need to complete a minimum of 2 courses (12UOC) in order to be eligible for the Masters degree. Foundation courses undertaken as part of a preparatory Graduate Certificate program will not automatically be counted towards the minimum 48UOC required for the award of a Masters degree.

## Graduate Certificates

The following section contains general information relating to all Graduate Certificate programs. Students should also refer to further details of requirements and course schedules under the individual program sections.

### Entry Requirements

A Bachelor degree at pass level in any discipline from The University of New South Wales or equivalent qualification;

or other academic and/or professional qualifications and/or significant work experience of a related nature as may be approved by the Postgraduate Coursework Education Committee.

Notes:

1. "Equivalent qualification" means an equivalent qualification from a tertiary institution at a level acceptable to the Postgraduate Coursework Education Committee.

2. Entry to all Graduate Certificate programs is subject to the approval of the relevant authority.

### Transfer from Graduate Diploma Program to Graduate Certificate Program (exit point)

A student who has obtained suitable units of credit in the equivalent Masters or Graduate Diploma program at UNSW@ADFA but has not taken out the Masters degree or Graduate Diploma may apply to be admitted to a Graduate Certificate program and to be granted credit for work completed in the Masters or Graduate Diploma program.

### Program Structure

Students will be required to complete 24 units of credit (24UOC) of coursework from the foundation courses specified for the program. The program comprises 4 foundation courses worth 6 units of credit each (6UOC).

In exceptional cases, and with the approval of the program authority, students may elect to take up to 6UOC (one course) from other comparable postgraduate programs.

All study programs are subject to the approval of the program authority.

### Articulation/Graduation

All students who have completed the requirements for a Graduate Certificate will be processed for graduation and offered direct entry to the articulated Graduate Diploma program.

Students who elect to undertake the articulated Graduate Diploma program within four years of completion of the Graduate Certificate may be eligible for up to 12UOC on the basis of their Graduate Certificate studies. They will normally need to complete an additional minimum of four courses in order to be eligible for the Graduate Diploma.

Students who do not wish to graduate from the Graduate Certificate are required to contact Student Administrative Services by the census date of the session in which they will meet the requirements.

### Foundation Courses

Students enrolled in the Graduate Certificate are required to enrol in foundation level courses only, unless a variation to this is specifically approved by the program authority.

### Course Availability

UNSW@ADFA reserves the right to cancel courses for which there are insufficient enrolments (normally a minimum of six is required). Advice of cancellation would normally be given to students within the first two weeks of teaching in a given session.

## SUMMARY TABLE OF PROGRAMS

### Postgraduate Coursework Degrees

Award	Program	code
DIT	Information Technology (Coursework/Research)	9920
MA/MPhil	Master of Arts/Master of Philosophy (Coursework/Research)	8691
MDefStud/MPhil	Master of Defence Studies/Master of Philosophy (Coursework/Research)	8692
MEngSc/MPhil	Master of Engineering Science/Master of Philosophy (Coursework/Research)	8693
MSc/MPhil	Master of Science/Master of Philosophy (Coursework/Research)	8694
MMgtStud/MPhil	Master of Management Studies/Master of Philosophy (Coursework/Research)	8695
MA	Arts	8175
MDefStud	Defence Studies	9900
MEngSc	Engineering Science	8569
MSc	Science	8562
MMgtStud	Management Studies	8398
Grad Dip	Arts	5855
Grad Dip	Defence Studies	5914
Grad Dip	Engineering Science	5889
Grad Dip	Management Studies	5823
Grad Dip	Science	5882
Grad Cert	Arts	7385
Grad Cert	Defence Studies	7384
Grad Cert	Engineering Science	7387
Grad Cert	Management Studies	7383
Grad Cert	Science	7382

# COURSEWORK AND RESEARCH PROGRAMS

## PROGRAM INFORMATION

### Doctor of Information (DIT) – 9920

#### Program Summary:

**Faculty:** UNSW@ADFA

**School:** School of Information Technology and Electrical Engineering

**Campus:** ADFA

**Award/s:** 9920 Doctor of Information Technology (DIT)

**Career:** Postgraduate

**Duration:** 3 years full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 144UOC

#### Program Description:

The DIT degree provides an opportunity to combine a doctoral thesis with the coursework component of an IT-related Master of Science. It allows research into an area of interest developed within the coursework, leading to a significant contribution to professional practice in information technology.

#### Program Objectives and Learning Outcomes:

The DIT Program allows students to undertake a coursework program of study followed by research into an area of interest developed within the coursework, leading to a significant contribution to professional practice in information technology.

#### Program Structure:

The degree consists of one half coursework (equivalent to three sessions full time) and one half research (equivalent to three sessions full time) which may be taken in an area encountered by the student while undertaking coursework. All coursework must be completed before the commencement of the dissertation.

The coursework component of the degree begins with enrolment in an IT-related Master of Science.

#### Academic Rules:

1. The degree of Doctor of Information Technology may be awarded by the Council to a candidate who has satisfactorily completed a program of coursework and research.

#### Qualifications

2. (1) A candidate for the degree shall have been awarded an appropriate degree of Bachelor with Honours or Master by formal coursework from The University of New South Wales or a qualification considered equivalent from another university or tertiary institution at a level acceptable to the Postgraduate Coursework Education Committee of the University College (hereinafter referred to as the PCEC). In addition, a candidate shall have a minimum of three years of relevant professional experience.
- (2) In exceptional cases an applicant who submits evidence of such other academic and professional qualifications as may be approved by the PCEC may be permitted to enrol for the degree.
- (3) If the PCEC is not satisfied with the qualifications submitted by an applicant the PCEC may require the applicant to undergo such assessment or carry out such work as the PCEC may prescribe, before permitting enrolment.

#### Enrolment and Progression

3. (1) An application to enrol as a candidate for the degree shall be made on the prescribed form which shall be lodged with Student Administrative Services by the advertised date.
- (2) A candidate for the degree shall undertake such courses and pass such assessment as prescribed.
- (3) The program of study shall comprise a coursework stage and a research stage.  
The coursework stage shall total a minimum of 72 units of credit. If a candidate's average mark on completion of 48 units of credit of coursework is less than 70%, the candidate shall be awarded a MSc in Information Technology and shall not be permitted to continue as a candidate for the DIT.  
The coursework stage must be completed, with an average mark of at least 70%, before a candidate may progress to the research stage.
- (4) During the coursework stage, the progress of a candidate shall be reviewed at the end of each main session by the PCEC under the Academic Standing scheme. Movement between levels of academic standing is based on progress, measured by cumulative number of failures. As a result of its review the PCEC may change the academic standing of a student or cancel enrolment.
- (5) During the research stage, the progress of the candidate shall be considered by the Research Committee following reporting from the School in accordance with the procedures established within the School and previously noted by the Research Committee.

On enrolment in the research stage, the Research Committee shall be satisfied that initial agreement has been reached between the School and the candidate on the research area, supervision arrangements, and provision of adequate facilities and that these are in accordance with the provisions of the guidelines for promoting postgraduate study within the University.

The research proposal will be reviewed as soon as feasible after enrolment in the research stage. This review will focus on the viability of the research proposal.

Progress will be reviewed within six months of the first review for a full time student, and within twelve months of the first review for a part-time student. As a result of either review the Research Committee may cancel enrolment or take such other action as it considers appropriate.

Thereafter, the progress of the candidate will be reviewed every six months for a full-time student, and every twelve months for a part-time student.

- (6) A full-time candidate will present the thesis for examination no earlier than three years and no later than five years from the date of enrolment and a part-time candidate will present the thesis for examination no earlier than four years and no later than six years from the date of enrolment, except with the approval of the Research Committee.
- (7) The candidate may undertake the research as an internal student i.e. at a campus, teaching hospital, or other research facility with which the University is associated, or as an external student not in attendance at the University except for periods as may be prescribed by the Research Committee.
- (8) An internal candidate will normally carry out the research on a campus or at a teaching or research facility of the University except that the Research Committee may permit a candidate to spend a period in the field, within another institution or elsewhere away from the University provided that the work can be supervised in a manner satisfactory to the Research Committee. In such instances the Research Committee shall be satisfied that the location and period of time away from the University are necessary to the research program.
- (9) The research shall be supervised by a supervisor or supervisors who are members of the academic staff of the School or under other appropriate supervision arrangements approved by the Research Committee. Normally an external candidate within another organisation or institution will have a co-supervisor at that institution.

## Thesis

4. (1) On completing the program of study a candidate shall submit a thesis embodying the results of the investigation.
- (2) The candidate shall give in writing to Student Administrative Services two months' notice of intention to submit the thesis.
- (3) The thesis shall comply with the following requirements:
  - it must be an original and significant contribution to knowledge of the subject;
  - the greater proportion of the work described must have been completed subsequent to enrolment for the degree;
  - it must be written in English;
  - it must reach a satisfactory standard of expression and presentation;
  - it must consist of an account of the candidate's own research, but in special cases work done conjointly with other persons may be accepted, provided the Research Committee is satisfied on the candidate's part in the joint research.
- (4) The candidate may not submit as the main content of the thesis any work or material which has previously been submitted for a university degree or other similar award but may submit any work previously published whether or not such work is related to the thesis.
- (5) Four copies of the thesis shall be presented in a form which complies with the requirements of the University for the preparation and submission of theses for higher degrees.
- (6) It shall be understood that the University has the right to retain the four copies of the thesis submitted for examination and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the *Copyright Act, 1968*, the University may issue the thesis in whole or in part, in photostat or microfilm or other copying medium.

## Examination

5. (1) There shall be no fewer than three examiners of the thesis, appointed by the Research Committee, at least two of whom shall be external to the University.
- (2) At the conclusion of the examination each examiner shall submit to the Research Committee a concise report on the thesis and shall recommend to the Research Committee one of the following:
  - (a) The thesis be noted as satisfactory.
  - (b) The thesis be noted as satisfactory subject to minor corrections as listed being made to the satisfaction of the Head of School.
  - (c) The thesis requires further work on matters detailed in my report. Should performance in this further work be to the satisfaction of the Research Committee, the thesis would be noted as satisfactory.

- (d) The thesis be noted as unsatisfactory in its present form and further work as described in my report is required. The revised thesis should be subject to re-examination.
- (e) The thesis be noted as unsatisfactory and does not demonstrate that resubmission would be likely to achieve a satisfactory response.
- (3) If the performance in the further work recommended under (2)(c) above is not to the satisfaction of the Research Committee, the Research Committee may permit the candidate to submit the thesis for re-examination as determined by the Research Committee within a period determined by it but not exceeding eighteen months.
- (4) The Committee shall, after consideration of the examiners' reports, any further reports on the thesis, the results of any further examination and of the prescribed course of study, recommend whether or not the candidate be awarded the degree. If it is decided that the candidate be not awarded the degree the Committee shall determine whether or not the candidate may resubmit the thesis after a further period of study and/or research.
- (5) If it is determined that the candidate not be awarded the degree and not be permitted to resubmit the thesis after a further period of study and/or research, and the candidate completed at least 8 courses during the coursework stage of the degree, the candidate will be awarded a Master of Science in Information Technology.

#### Fees

- 6. A candidate shall pay such fees as may be determined from time to time by the Council.

## Combined Research/Coursework Degrees - Articulation from Postgraduate Coursework to Research

### Articulation from the Master of Science to the Doctor of Information Technology

A candidate who has completed the requirements for an IT-related Master of Science at The University of New South Wales but has not taken out that qualification is eligible to apply for articulated entry into the Doctor of Information Technology (provided their average mark in the MSc was 70% or better and they have a minimum of three years of relevant professional experience) within four years of completion of the MSc requirements. After completing four more courses and provided their overall average mark is still at least 70%, students may enrol in the DIT dissertation.

Note that during their postgraduate coursework studies, candidates are required to complete the courses ZITE8901 *Case Studies in Information Technology*, ZITE8902 *Professional Practices*, and ZITE8903 *Research Methods in Information Technology*.

The topic of the dissertation will commonly be a development of at least one course. The topic will be nominated by the candidate and approved by the Research Committee of UNSW@ADFA. The dissertation must amount to an original contribution to a field of study, and be of publishable quality. It will be assessed by not less than three examiners appointed by the Research Committee. Assessment is as for other final research degrees. A final result of non-award of the DIT will lead to a MSc being conferred on the candidate if they have completed at least 8 courses.

### Entry to the Doctor of Information Technology by a Holder of a Masters Degree

Students who have been awarded a coursework Masters degree in a related discipline from The University of New South Wales are eligible to apply for entry into the Doctor of Information Technology (provided their average mark in the Masters degree was 70% or better and they have a minimum of three years of relevant professional experience), within four years of completion of the Masters degree requirements and may apply for credit for up to 6 courses.

### Length of Theses

The length of a doctoral thesis normally should not exceed 100,000 words of text and that of a masters research thesis 75,000.

### Preparation and Submission of Project Reports and Theses for Higher Degrees

The requirements for Preparation and Submission of Project Reports and Theses for Higher Degrees are outlined on page 258 of this Handbook.

### Sample Program:

9 courses from an IT-related Master of Science program, plus the following courses:

ZITE8901	<i>Case Studies in Information Technology</i>
ZITE8902	<i>Professional Practices</i>
ZITE8903	<i>Research Methods in Information Technology</i>

plus either:

ZITE8998	<i>DIT Dissertation Full-Time</i>
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or

ZITE8999	<i>DIT Dissertation Part-Time</i>
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## PROGRAM INFORMATION

### Master of Arts/Master of Philosophy - 8691

#### Program Summary:

**Faculty:** UNSW@ADFA

**School:** School of Humanities and Social Sciences

**Campus:** ADFA

**Award/s:** Master of Arts/Master of Philosophy (MA/MPhil)

**Career:** Postgraduate

**Duration:** 2 years full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 96UOC

#### Program Description:

This combined degree program provides students with a structured two-year full-time or part-time equivalent program of study leading to the award of two Masters degrees, a Masters by coursework in Arts, Engineering Science, Defence Studies, Management Studies or Science, and the Master of Philosophy.

#### Program Objectives and Learning Outcomes:

The program provides a unique opportunity for graduate students to attain both a coursework and a research qualification to strengthen their existing knowledge and skills while also defining a pathway to further study, particularly higher-level research.

#### Program Structure:

The first year of the program is centred on the Masters by coursework. On completion of this 48UOC program of study, with an average mark of at least 70%, students in the combined degree will be admitted to the Master of Philosophy with Advanced Standing for the 24UOC coursework component of that degree. Completion of the MPhil in the second year by this route requires students to undertake only the 48UOC research thesis. The fulltime structure of the combined degree program would normally be:

Session	Academic Program	Units of Credit (UOC)
1	4 courses from the coursework Masters	24
2	4 courses from the coursework Masters	24
3	Research Thesis component of MPhil	24
4	Research Thesis component of MPhil	24

The research component of the MPhil in the combined degree program will be normally be in the same field of study as the coursework program or one closely related to it. Students completing the MA or MDefStud programs would undertake the MPhil through the School of Humanities and Social Sciences; those in MEngSc would complete the MPhil through the Schools of Aerospace, Civil and Mechanical Engineering or Information Technology and Electrical Engineering or the School of Physical, Environmental and Mathematical Sciences; and those in MMgtStud would complete the MPhil in the School of Business. Enrolment in the research thesis will be at the discretion of the Head of School in which the research is proposed to be undertaken.

Students enrolled in a separate Masters by coursework may articulate to the combined degree program with credit for all completed courses. Students enrolled separately in the MPhil may articulate to the combined degree with credit for completed coursework providing course requirements in the chosen plan of study are met.

#### Academic Rules:

The rules for the award of the Masters by coursework component of the combined degree program are those that apply to existing Masters by coursework programs. The rules for the degree of Master of Arts, Master of Defence Studies, Master of Engineering Science, Master of Management Studies or Master of Science are identical. Please refer to the rules for Masters by coursework programs in the 2006 ADFA Handbook (page 179).

The rules for the award of the Master of Philosophy component of the combined degree program are those that apply to existing Masters of Philosophy program, except that Advanced Standing for the coursework component will be granted on successful completion of the coursework program. The rules governing enrolment, progression, the thesis and the examination progress remain unchanged. Please refer to the rules for Masters of Philosophy program in the 2006 ADFA Handbook (page 261).

#### The following rules apply specifically to the combined degree program.

1. Candidates shall complete the 48UOC coursework component of the combined degree (the Masters by coursework) prior to commencing the research component of the MPhil.
2. While undertaking the coursework component of the combined degree, candidates shall be subject to the same rules as those applying to the appropriate Masters by coursework. If there is any inconsistency between the rules covering the combined program and the rules covering the coursework degree, the rules covering the combined program shall take precedence.
3. The coursework component must be completed, with an average mark of at least 70%, before a candidate may progress to the research component. Admission to the research component is at the discretion of the Head of School in which the research is proposed to be undertaken.

4. While undertaking the research component of the combined degree, candidates shall be subject to the same rules as those applying to the Master of Philosophy. With Advanced Standing for the coursework component of the MPhil however, a full-time candidate will present the thesis for examination no earlier than the equivalent of 2 sessions and no later than 4 sessions from the date of enrolment, and a part-time candidate will present the thesis for examination no earlier than the equivalent of 4 sessions and no later than 8 sessions from the date of enrolment, except with the approval of the UNSW@ADFA Research Committee. If there is any inconsistency between the rules covering the combined program and the rules covering the coursework degree, the rules covering the combined program shall take precedence.
5. Candidates shall be eligible for admission to the coursework Masters degree (including nominated plans of study) upon completion of all requirements for the award of that degree.

### Preparation and Submission of Project Reports and Theses for Higher Degrees

The requirements for Preparation and Submission of Project Reports and Theses for Higher Degrees are outlined in the 2006 ADFA Handbook (page 258).

## PROGRAM INFORMATION

### Master of Defence Studies/ Master of Philosophy - 8692

#### Program Summary:

**Faculty:** UNSW@ADFA  
**School:** School of Humanities and Social Sciences  
**Campus:** ADFA  
**Award/s:** Masters of Defence Studies/Master of Philosophy (MDefStud/MPhil)  
**Career:** Postgraduate  
**Duration:** 2 years full-time or part-time equivalent  
**UOC per session:** 24UOC (full-time)  
**UOC for award:** 96UOC

#### Program Description:

This combined degree program provides students with a structured two-year full-time or part-time equivalent program of study leading to the award of two Masters degrees, a Masters by coursework in Arts, Engineering Science, Defence Studies, Management Studies or Science, and the Master of Philosophy.

#### Program Objectives and Learning Outcomes:

The program provides a unique opportunity for graduate students to attain both a coursework and a research qualification to strengthen their existing knowledge and skills while also defining a pathway to further study, particularly higher-level research.

#### Program Structure:

*The program structure for the Masters of Defence Studies /Master of Philosophy (MDefStud/MPhil) is identical to the Masters of Arts /Master of Philosophy (MA/MPhil), please refer to the 2006 ADFA Handbook (page 175).*

#### Academic Rules:

*The rules for the Masters of Defence Studies /Master of Philosophy (MDefStud/MPhil) are identical to the Masters of Arts/ Master of Philosophy (MA/MPhil), please refer to the 2006 ADFA Handbook (page 175).*

## PROGRAM INFORMATION

### Master of Engineering Science/ Master of Philosophy - 8693

#### Program Summary:

**Faculty:** UNSW@ADFA  
**School:** School of Aerospace, Civil and Mechanical Engineering  
**Campus:** ADFA  
**Award/s:** Masters of Engineering Science/ Master of Philosophy (MEngSc/MPhil)  
**Career:** Postgraduate  
**Duration:** 2 years full-time or part-time equivalent  
**UOC per session:** 24UOC (full-time)  
**UOC for award:** 96UOC

#### Program Description:

This combined degree program provides students with a structured two-year full-time or part-time equivalent program of study leading to the award of two Masters degrees, a Masters by coursework in Arts, Engineering Science, Defence Studies, Management Studies or Science, and the Master of Philosophy.

#### Program Objectives and Learning Outcomes:

The program provides a unique opportunity for graduate students to attain both a coursework and a research qualification to strengthen their existing knowledge and skills while also defining a pathway to further study, particularly higher-level research.

### Program Structure:

The program structure for the Masters of Engineering Science /Master of Philosophy (MEngSc/MPhil) is identical to the Masters of Arts /Master of Philosophy (MA/MPhil), please refer to the 2006 ADFA Handbook (page 175).

### Academic Rules:

The rules for the Masters of Engineering Science /Master of Philosophy (MEngSc/MPhil) are identical to the Masters of Arts/ Master of Philosophy (MA/MPhil), please refer to the 2006 ADFA Handbook (page 175).

## PROGRAM INFORMATION

### Master of Engineering Science/ Master of Philosophy - 8693

#### Program Summary:

**Faculty:** UNSW@ADFA

**School:** School of Information Technology and Electrical Engineering

**Campus:** ADFA

**Award/s:** Masters of Engineering Science / Master of Philosophy (MEngSc/MPhil)

**Career:** Postgraduate

**Duration:** 2 years full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 96UOC

#### Program Description:

This combined degree program provides students with a structured two-year full-time or part-time equivalent program of study leading to the award of two Masters degrees, a Masters by coursework in Arts, Engineering Science, Defence Studies, Management Studies or Science, and the Master of Philosophy.

#### Program Objectives and Learning Outcomes:

The program provides a unique opportunity for graduate students to attain both a coursework and a research qualification to strengthen their existing knowledge and skills while also defining a pathway to further study, particularly higher-level research.

#### Program Structure:

The program structure for the Masters of Engineering Science / Master of Philosophy (MEngSc/MPhil) is identical to the Masters of Arts / Master of Philosophy (MA/MPhil), please refer to the 2006 ADFA Handbook (page 175).

### Academic Rules:

The rules for the Masters of Engineering Science / Master of Philosophy (MEngSc/MPhil) are identical to the Masters of Arts / Master of Philosophy (MA/MPhil), please refer to the 2006 ADFA Handbook (page 175).

### Master of Science/Master of Philosophy - 8694

#### Program Summary:

**Faculty:** UNSW@ADFA

**School:** School of Information Technology and Electrical Engineering

**Campus:** ADFA

**Award/s:** Masters of Science / Master of Philosophy (MSc/MPhil)

**Career:** Postgraduate

**Duration:** 2 years full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 96UOC

#### Program Description:

This combined degree program provides students with a structured two-year full-time or part-time equivalent program of study leading to the award of two Masters degrees, a Masters by coursework in Arts, Engineering Science, Defence Studies, Management Studies or Science, and the Master of Philosophy.

#### Program Objectives and Learning Outcomes:

The program provides a unique opportunity for graduate students to attain both a coursework and a research qualification to strengthen their existing knowledge and skills while also defining a pathway to further study, particularly higher-level research.

#### Program Structure:

The program structure for the Masters of Science / Master of Philosophy (MSc/MPhil) is identical to the Masters of Arts / Master of Philosophy (MA/MPhil), please refer to the 2006 ADFA Handbook (page 175).

### Academic Rules:

The rules for the Masters of Science / Master of Philosophy (MSc/MPhil) are identical to the Masters of Arts / Master of Philosophy (MA/MPhil), please refer to the 2006 ADFA Handbook (page 175).

## Master of Science/ Master of Philosophy - 8694

### Program Summary:

**Faculty:** UNSW@ADFA

**School:** School of Physical, Environmental and Mathematical Sciences

**Campus:** ADFA

**Award/s:** Masters of Science/ Master of Philosophy (MSc/MPhil)

**Career:** Postgraduate

**Duration:** 2 years full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 96UOC

### Program Description:

This combined degree program provides students with a structured two-year full-time or part-time equivalent program of study leading to the award of two Masters degrees, a Masters by coursework in Arts, Engineering Science, Defence Studies, Management Studies or Science, and the Master of Philosophy.

### Program Objectives and Learning Outcomes:

The program provides a unique opportunity for graduate students to attain both a coursework and a research qualification to strengthen their existing knowledge and skills while also defining a pathway to further study, particularly higher-level research.

### Program Structure:

*The program structure for the Masters of Science / Master of Philosophy (MSc/MPhil) is identical to the Masters of Arts / Master of Philosophy (MA/MPhil), please refer to the 2006 ADFA Handbook (page 175).*

### Academic Rules:

*The rules for the Masters of Science / Master of Philosophy (MSc/MPhil) are identical to the Masters of Arts / Master of Philosophy (MA/MPhil), please refer to the 2006 ADFA Handbook (page 175).*

## Master of Management Studies / Master of Philosophy - 8695

### Program Summary:

**Faculty:** UNSW@ADFA

**School:** School of Business

**Campus:** ADFA

**Award/s:** Masters of Management Studies/ Master of Philosophy (MMgtStud/MPhil)

**Career:** Postgraduate

**Duration:** 2 years full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 96UOC

### Program Description:

This combined degree program provides students with a structured two-year full-time or part-time equivalent program of study leading to the award of two Masters degrees, a Masters by coursework in Arts, Engineering Science, Defence Studies, Management Studies or Science, and the Master of Philosophy.

### Program Objectives and Learning Outcomes:

The program provides a unique opportunity for graduate students to attain both a coursework and a research qualification to strengthen their existing knowledge and skills while also defining a pathway to further study, particularly higher-level research.

### Program Structure:

*The program structure for the Masters of Management Studies / Master of Philosophy (MMgtStud/MPhil) is identical to the Masters of Arts / Master of Philosophy (MA/MPhil), please refer to the 2006 ADFA Handbook (page 175).*

### Academic Rules:

*The rules for the Masters of Management Studies / Master of Philosophy (MMgtStud/MPhil) are identical to the Masters of Arts / Master of Philosophy (MA/MPhil), please refer to the 2006 ADFA Handbook (page 175).*

# COURSEWORK PROGRAMS

## Arts Programs – 8175, 5855

This information applies to students who commenced their study in this program in 2006. Students continuing on in the program from previous years should refer to the ADFA Handbook dated in the year that they commenced their program to determine the academic rules that apply to their study.

### Program Overview

The Arts Programs encompass the following awards: 8175 Master of Arts; 5855 Graduate Diploma in Arts. The specialisation offered is in English and Cultural Studies.

The **English and Cultural Studies** specialisation affords fundamental insights into the cultural underpinning of social and political attitudes and developments in Australia, its regional neighbours and its traditional international partners, in particular the US and Britain. The courses blend the study of literary texts, film and other forms of communication with a detailed understanding of the cultures that those works reflect. Cultural responses to the impact of war are examined and an understanding provided of the theory of communication and how it has evolved.

# PROGRAM INFORMATION

## Master of Arts – 8175

This information applies to students who commenced their study in this program in 2006. Students continuing on in the program from previous years should refer to the ADFA Handbook dated in the year that they commenced their program to determine the academic rules that apply to their study.

### Program Summary:

**Faculty:** UNSW@ADFA

**School:** School of Humanities and Social Sciences

**Campus:** ADFA

**Award:** 8175 Master of Arts (MA coursework)

**Career:** Postgraduate

**Duration:** One year full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 48UOC

### Program Description:

The Master of Arts enables students to specialise in English and Cultural Studies.

### Program Objectives and Learning Outcomes:

The Arts program provides students with the opportunity to study the cultural and literary expressions that shape and help interpret human perceptions and behaviour.

### Program Structure:

Students undertaking the Master of Arts must satisfy the core and elective course requirements specified in the plan in which they are enrolled. The elective options provide the flexibility to tailor the degree to meet individual needs and interests. Students are required to take 8 coursework units (48UOC) from the core and elective courses set out on page 212. Each course is worth 6UOC.

### Academic Rules:

***The rules for the degree of Master of Arts, Master of Defence Studies, Master of Engineering Science, Master of Management Studies and Master of Science are identical. Please refer to rules set out under the Master of Arts below.***

1. The degree of Master of Arts, Master of Defence Studies, Master of Engineering Science, Master of Management Studies or Master of Science may be awarded by the Council to a candidate who has satisfactorily completed a program of advanced study.

### Entry Requirements

2. A candidate for the degree:
  - (1) shall have been awarded a four year degree of Bachelor or Bachelor with Honours in the same or related discipline from The University of New South Wales or equivalent qualification; or
  - (2) shall have been awarded a Graduate Diploma in the same or related discipline from The University of New South Wales or equivalent qualification; or
  - (3) shall have been awarded a three year Bachelor degree at pass level from The University of New South Wales in the same or related discipline, or equivalent qualification, which includes a major in a related field of study together with at least three years relevant full-time work experience; or
  - (4) shall submit evidence of such academic and/or professional qualifications and/or significant work experience of a related nature as may be approved by the Postgraduate Coursework Education Committee of the University College (hereinafter referred to as the Committee).

Notes:

1. "equivalent qualification" means an equivalent qualification from a tertiary institution at a level acceptable to the Committee.
2. Entry to all Masters programs is subject to the recommendation of the relevant authority.

### Enrolment and Progression

3. (1) An application to enrol as a candidate for the degree shall be made on the prescribed form which shall be lodged with Student Administrative Services by the advertised date.

- (2) A candidate for the degree shall undertake such courses and pass such assessment as prescribed.
- (3) The program of study shall total a minimum of 48 units of credit.
- (4) The progress of a candidate shall be reviewed at the end of each main session by the Committee under the Academic Standing scheme. Movement between levels of academic standing is based on progress, measured by cumulative number of failures. As a result of its review the Committee may change the academic standing of a student or cancel enrolment.

#### Fees

4. A candidate shall pay such fees as may be determined from time to time by the Council.

#### Sample Program:

Students undertaking the Master of Arts program choose their courses in accordance with the core and elective requirements for their particular specialisation (see Plan Information following).

##### Core Courses

ZHSS8103	<i>Exotic Neighbours: Asia-Pacific Literature, Culture and Communication</i>
ZHSS8106	<i>War and Cultural Memory: Representations of War and the Making of Cultural Myths</i>
ZHSS8109	<i>Australian Literary Culture</i>

##### Elective Courses:

ZHSS8102	<i>American Empire: American Culture in Context</i>
ZHSS8108	<i>Out of Empire: British Literature and Culture</i>
ZHSS8115	<i>Literary Theory and the History of Communication</i>
ZHSS8122	<i>Research Project - English</i>

## PLAN INFORMATION

### Plan available in the Master of Arts Program

The blend of core and elective courses seeks to ensure that all students have a firm grasp of the fundamental concepts and issues while maintaining the flexibility to pursue their particular areas of interest. The courses draw primarily on the disciplines of English, History, and Politics.

To complete a specialisation within the Arts program, students must complete the specified plan of study. The various specialisations within the Arts Program cannot currently be completed solely in Distance mode.

Not all courses in the Arts program are available each year. A schedule of courses is set out at the end of the program description.

## 8175 Master of Arts

### MA in English And Cultural Studies

#### Plan Overview

<b>Plan Code</b>	<b>AENGAS8175</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Humanities and Social Sciences</b>
<b>Contact</b>	<b>Prof C. Thayer, Postgraduate Coursework Co-ordinator</b>

#### Plan Description

The MA in English and Cultural Studies is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant social sciences or humanities discipline and/or extensive relevant professional experience who wish to gain a more comprehensive appreciation of literary texts, film and other means of communication and of the cultures which they represent.

It provides important insights into the cultural underpinnings that shape perceptions and action both within Australia and comparatively with Australia's regional neighbours and traditional international partners.

#### Plan Structure

Students undertaking the MA in English and Cultural Studies are required to take 8 coursework units (48UOC) from core and elective courses in accordance with the conditions set out on page 212. Each course is worth 6UOC.

#### Core Courses:

Students must complete at least two of the following core courses:

ZHSS8103	<i>Exotic Neighbours: Asia-Pacific Literature, Culture and Communication</i>
ZHSS8106	<i>War and Cultural Memory: Representations of War and the Making of Cultural Myths</i>
ZHSS8109	<i>Australian Literary Culture</i>

#### Elective Courses:

In addition, students must choose at least three from the following elective courses:

ZHSS8102	<i>American Empire: American Culture in Context</i>
ZHSS8108	<i>Out of Empire: British Literature and Culture</i>
ZHSS8115	<i>Literary Theory and the History of Communication</i>

Students may choose their remaining courses from the following:

ZHSS8112	<i>Special Study</i>
ZHSS8119	<i>Academic Discourse I: Analysis and Writing (for international students)</i>
ZHSS8120	<i>Academic Discourse II: Analysis and Writing (for international students)</i>

Students may, with the approval of the Program Authority, take up to two courses (12UOC) from related coursework programs, such as Defence Studies.

In 2006 the MA in English and Cultural Studies may only be undertaken on a part-time basis.

Full details of Arts courses available in 2006 may be found in the Course Catalogue on page 230.

**Research Project:**

The option of ZHSS8122 *Research Project – English* (12UOC) is available to Masters students who attain a high credit average or better in four courses and is subject to the approval of the Head of School. The ZHSS8122 *Research Project – English* is recommended for those with a strong interest in pursuing original research in a particular area or intending to undertake a higher level research qualification. Students undertaking the ZHSS8122 *Research Project – English* may take a maximum of one course (6UOC) from a related coursework program.

## PROGRAM INFORMATION

### Graduate Diploma of Arts – 5855

**This information applies to students who commenced their study in this program in 2006. Students continuing on in the program from previous years should refer to the ADFA Handbook dated in the year that they commenced their program to determine the academic rules that apply to their study.**

**Program Summary:**

**Faculty:** UNSW@ADFA

**School:** School of Humanities and Social Sciences

**Campus:** ADFA

**Award:** 5855 Graduate Diploma in Arts (GradDipArts)

**Career:** Postgraduate

**Duration:** One year full-time or part-time equivalent

**UOC per session:** 18UOC (full-time)

**UOC for award:** 36UOC

**Program Description:**

The Graduate Diploma of Arts enables students to specialise in the GradDipArts in English and Cultural Studies.

**Program Objectives and Learning Outcomes:**

The Arts program provides students with the opportunity to study cultural and literary expressions that shape and help interpret human perceptions and behaviour.

**Program Structure:**

Students undertaking the Graduate Diploma in Arts must satisfy the core and elective course requirements specified in the particular plan in which they are enrolled. The elective options provide the flexibility to tailor the degree to meet individual needs and interests. Students are required to take 6 coursework units (36UOC) from the core and elective courses set out on page 212. Each course is worth 6UOC.

**Academic Rules:**

**The rules for the degree of Graduate Diploma of Arts, Graduate Diploma of Defence Studies, Graduate Diploma of Engineering Science, Graduate Diploma of Management Studies and Graduate Diploma of Science are identical. Please refer to rules set out under the Graduate Diploma of Arts below.**

1. A Graduate Diploma may be awarded by the Council to a candidate who has satisfactorily completed a program of advanced study.

**Entry Requirements**

2. A candidate for the Diploma:
  - (1) shall have been awarded a Bachelor degree at pass level in the same or related discipline from The University of New South Wales or equivalent qualification; or
  - (2) shall have been awarded a Graduate Certificate in the same or related discipline from The University of New South Wales or equivalent qualification; or
  - (3) shall submit evidence of such academic and/or professional qualifications and/or significant work experience of a related nature as may be approved by the Postgraduate Coursework Education Committee of the University College (hereinafter referred to as the Committee).

**Notes:**

1. "equivalent qualification" means an equivalent qualification from a tertiary institution at a level acceptable to the Committee.
2. Entry to all Graduate Diploma programs is subject to the recommendation of the relevant authority.
3. An applicant who has obtained suitable units of credit in the equivalent Master's program of UNSW@ADFA but has not taken out the Master's degree may apply to be admitted to a Graduate Diploma program and to be granted credit for work completed in, or be deemed to have met the requirements of, the Master's program.

**Enrolment and Progression**

4. (1) An application to enrol as a candidate for the diploma shall be made on the prescribed form which shall be lodged with Student Administrative Services by the advertised date.
- (2) A candidate for the diploma shall be required to undertake such courses and pass such assessment as prescribed.
- (3) The program of study shall total a minimum of 36 units of credit.
- (4) The progress of a candidate shall be reviewed at the end of each main session by the Committee under the Academic Standing scheme. Movement between levels of academic standing is based on progress, measured by cumulative number of failures. As a result of its review the Committee may change the academic standing of a student or cancel enrolment.

**Fees**

5. A candidate shall pay such fees as may be determined from time to time by the Council.

## PLAN INFORMATION

### Plans available in the Graduate Diploma in Arts Program

#### GradDipArts in English and Cultural Studies

##### Plan Overview

<b>Plan Code</b>	<b>AENGA7382</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Humanities and Social Sciences</b>
<b>Contact</b>	<b>Prof C. Thayer, Postgraduate Coursework Co-ordinator</b>

##### Plan Description

The GradDipArts in English and Cultural Studies is designed for postgraduate scholars with undergraduate qualifications in a relevant social science or humanities discipline and/or appropriate professional experience who wish to gain a more comprehensive appreciation of literary texts, film and other means of communication and of the cultures which they represent. It provides the foundations for students wishing to proceed to more advanced study in the discipline and promotes important insights into the perceptions and behaviour of Australia and other nations and groups.

##### Plan Structure

Students undertaking the GradDipArts in English and Cultural Studies are required to take 6 coursework units (36UOC) from the core and elective courses set out above under the MA in English and Cultural Studies.

Students must complete at least two of the following core courses:

ZHSS8103	<i>Exotic Neighbours: Asia-Pacific Literature, Culture and Communication</i>
ZHSS8106	<i>War and Cultural Memory: Representations of War and the Making of Cultural Myths</i>
ZHSS8109	<i>Australian Literary Culture</i>

In addition, students must choose at least two courses from the following elective courses:

ZHSS8102	<i>American Empire: American Culture in Context</i>
ZHSS8108	<i>Out of Empire: British Literature and Culture</i>
ZHSS8115	<i>Literary Theory and the History of Communication</i>

Students may select their other courses from the remaining core and elective courses identified in the Master of Arts in English and Cultural Studies.

They may, with the approval of the Program Authority, take one course (6UOC) from a related coursework program. The ZHSS8122 *Research Project – English* is not available to candidates for the Graduate Diploma.

In 2006, the GradDip Arts in English and Cultural Studies may only be undertaken on a part-time basis. Full details of Arts courses available in 2006 may be found in the Course Catalogue on page 230.

### Defence Studies Programs – 9900, 5914, 7384

This information applies to students who commenced their study in this program in 2006. Students continuing on in the program from previous years should refer to the ADFA Handbook dated in the year that they commenced their program to determine the academic rules that apply to their study.

##### Program Overview:

The Defence Studies Programs incorporates the awards of 9900 Master of Defence Studies; 5914 Graduate Diploma in Defence Studies; 7384 Graduate Certificate in Defence Studies.

Defence Studies is an inter-disciplinary program which brings scholarly insight and academic discipline to bear on a wide range of defence and security policy and planning issues. It provides high level understanding and advanced analytical skills in relation to the evolving strategic environment, particularly in the Asia-Pacific, the key factors that are shaping defence and security policy and decision making in the 21st century, and the development of military strategy and the conduct of operations.

The program meets the needs of advanced scholars seeking to master the principal concepts and issues affecting strategic and international security studies and to understand their practical planning implications. For defence professionals, it offers the opportunity to broaden their knowledge of the policy and security environment in which they are working and to develop a comprehensive set of skills for analysing that environment and developing policy options.

The structure of the Defence Studies program provides students with the opportunity to tailor their degree to individual needs and interests. They may elect to specialise in specific areas of strategic and defence studies or to complete a more broadly based qualification. Students who enroll in the Master of Defence Studies program must complete two keystone courses (12 units of credit) while students who enroll in the Graduate Diploma of Defence studies must enroll in one Keystone course. The School offers the following three Keystone courses:

**ZHSS8420 *Defending Australia: Developing Security Policy in A Changing World.*** This course provides a comprehensive understanding of Australia's defence and foreign policy and develops insights and skills relevant to responding to current and prospective challenges. It traces the evolution of policy, identifies its fundamental elements, and reviews are considered in depth as are the factors shaping defence capability and operations. Particular attention is given to contemporary planning challenges including regional and alliance engagement, stability operations, homeland security, and capability planning amid uncertainty. Specific issue studies introduce students to Australian decision making processes and the dynamics of policy in action.

**ZHSS8424 *Foundations of Strategy and Military Affairs.*** This course provides a grounding in the fundamentals of strategy, the development of modern strategic thought from Machiavelli to the present, including thinking about airpower and seapower, and developments in conventional



warfare and military activity since 1945, with an emphasis on the period since 1975. It will provide students with an enhanced understanding of the context in which military activity occurs, and provides the link between understanding policy and decision-making at whole of government level, and the outcomes on the ground, at sea and in the air.

ZHSS8422 *Asia-Pacific Security: Regional Security in the New Millennium*. This course provides an in-depth analysis of the players, the processors and the issues shaping Asia-Pacific Security. Stretching from the major powers of Northeast Asia to the micro-states of the Pacific, it explores the changing dimensions of the security debate, the factors shaping national perspectives and capabilities, and the effectiveness of the different tools of engagement. Individual country studies complement the analysis of critical themes including the impact of strategic culture, the balance between traditional and non-traditional security challenges, the role multilateral institutions, and the exercise of U.S. hegemony. Studying potential flashpoints tests the intersection of these dynamics on existing arrangements.

Students also have the choice of taking a number of electives on special topics or pursuing an area of interest in depth through enrolment in a Special Studies course.

Not all courses in the Defence Studies program are available each year. A schedule of courses is set out at the end of the program description.

### Academic Rules:

*The rules for the degree of Master of Arts, Master of Defence Studies, Master of Engineering Science, Master of Management Studies or Master of Science are identical. Please refer to rules set out under the Master of Arts on page 175.*

### Sample Program:

Students undertaking the Master of Defence Studies program may select either a broadly based set of courses or choose to specialise in particular aspects of Defence Studies. A typical program would be:

ZHSS8420	<b>(Keystone 1)</b> <i>Defending Australia: Developing Security Policy in a Changing World</i>
ZHSS8424	<b>(Keystone 2)</b> <i>Foundations of Strategy and Military Affairs</i>
ZHSS8422	<b>(Keystone 3)</b> <i>Asia-Pacific Security: Regional Security in the New Millennium</i>
ZHSS8204	<i>Modern Naval History and Strategy</i>
ZHSS8416	<i>Seeking the Information Edge: The Role of Modern Intelligence</i>
ZHSS8421	<i>Defending Australia – Special Studies</i>
ZHSS8423	<i>Asia-Pacific Security – Special Studies</i>
ZHSS8425	<i>Strategy and Military Affairs – Special Studies</i>

## PROGRAM INFORMATION

### Master of Defence Studies – 9900

**This information applies to students who commenced their study in this program in 2006. Students continuing on in the program from previous years should refer to the ADFA Handbook dated in the year that they commenced their program to determine the academic rules that apply to their study.**

#### Program Summary:

**Faculty:** UNSW@ADFA

**School:** School of Humanities and Social Sciences

**Campus:** ADFA

**Award:** 9900 Master of Defence Studies (MDefStud)

**Career:** Postgraduate

**Duration:** One year full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 48UOC

#### Program Description:

The Master of Defence Studies is designed for postgraduate scholars and defence professionals with appropriate undergraduate qualifications in a relevant social science or humanities discipline and/or extensive relevant professional experience who wish to gain a comprehensive understanding of the strategic environment, the key factors shaping defence and security policy and decision making, and the conduct of military operations.

#### Program Objectives and Learning Outcomes:

It provides comprehensive insights and analytical skills relevant to both higher level policy development and advanced postgraduate study.

#### Program Structure:

Students undertaking the Master of Defence Studies have the flexibility to tailor their degree to meet their individual needs and interests. They are required to take two keystone courses (24UOC) and additional elective courses from the list on page 212, for a total of 48UOC. Each course is worth 6UOC and each research paper elective is worth 12UOC. While the courses are broadly grouped to reflect different aspects of the discipline, students may elect either to specialise in a particular area or to complete a more broadly based qualification.

#### Keystone Courses

ZHSS8420	<i>Defending Australia: Developing Security Policy in a Changing World</i>
ZHSS8422	<i>Asia-Pacific Security: Regional Security in the New Millennium</i>
ZHSS8424	<i>Foundations of Strategy and Military Affairs</i>

**Strategy and Military Affairs**

ZHSS8203	<i>History of Pre-Nuclear Military Thought</i>
ZHSS8204	<i>Modern Naval History and Strategy</i>
ZHSS8207	<i>Case Studies in War</i>
ZHSS8425	<i>Strategy and Military Affairs – Special Studies</i>
ZPEM8202	<i>Principles of Geographic Information Analysis and Remote Sensing</i>
ZPEM8203	<i>Applications in Remote Sensing</i>
ZPEM8206	<i>Applications in Geographic Information Analysis</i>

**The Defence of Australia**

ZHSS8202	<i>The History of Australian Defence and Foreign Policy</i>
ZHSS8411	<i>Developing Strategic Policy and Planning in the 21st Century</i>
ZHSS8419	<i>Australian Homeland Security</i>
ZHSS8421	<i>Defending Australia – Special Studies</i>

**Regional Security Asia Pacific**

ZHSS8103	<i>Exotic Neighbours: Asia-Pacific Literature, Culture and Communication</i>
ZHSS8405	<i>Security Issues in Northeast Asia</i>
ZHSS8413	<i>Southeast Asia: Issues in Security Cooperation</i>
ZHSS8423	<i>Asia-Pacific Security: Special Studies</i>
ZPEM8204	<i>Strategic Geographical Issues in Australia's Neighbourhood</i>

**International Security**

ZHSS8403	<i>Global Security</i>
ZHSS415	<i>Terrorism and Transnational Crime</i>
ZHSS8416	<i>Seeking the Information Edge: The Role of Modern Intelligence</i>

**Cultural Awareness and Academic Skills**

ZHSS8106	<i>War and Cultural Memory: Representations of War and the Making of Cultural Myths</i>
ZHSS8119	<i>Academic Discourse I: Analysis and Writing (for International Students)</i>
ZHSS8120	<i>Academic Discourse II: Analysis and Writing (for International Students)</i>

Students may, with the approval of the Program Authority, take up to two courses (12UOC) from related coursework programs.

**Research Project:**

The option of a ZHSS8212 *Research Project - History* or ZHSS8400 *Research Project - Politics* (12UOC) - is available to Masters students who attain a high credit average or better in courses worth 24UOC and is subject to the approval of the Head of School. The *Research Project* is recommended for those with a strong interest in pursuing original research in a particular area or intending to undertake a higher level research qualification. Students undertaking the *Research Project* may take a maximum of one course (6UOC) from a related coursework program.

**Academic Rules:**

The rules for the degree of Master of Arts, Master of Defence Studies, Master of Engineering Science, Master of Management Studies or Master of Science are identical. Please refer to rules set out under the Master of Arts on page 179.

## PROGRAM INFORMATION

### Graduate Diploma in Defence Studies – 5914

This information applies to students who commenced their study in this program in 2006. Students continuing on in the program from previous years should refer to the ADFA Handbook dated in the year that they commenced their program to determine the academic rules that apply to their study.

**Program Summary:**

<b>Faculty:</b>	UNSW@ADFA
<b>School:</b>	School of Humanities and Social Sciences
<b>Campus:</b>	ADFA
<b>Award:</b>	5914 Graduate Diploma in Defence Studies (GradDipDefStud)
<b>Career:</b>	Postgraduate
<b>Duration:</b>	One year full-time or part-time equivalent
<b>UOC per session:</b>	18UOC (full-time)
<b>UOC for award:</b>	36UOC

**Program Description:**

The Graduate Diploma in Defence Studies is designed for postgraduate scholars and defence and foreign affairs professionals with undergraduate qualifications in a relevant discipline and/or appropriate professional experience who wish to gain a more detailed understanding of the strategic environment, the key factors shaping defence and security policy and decision making, and the conduct of military operations.

**Program Objectives and Learning Outcomes:**

It provides the foundations for students wishing to proceed to more advanced study in the discipline and promotes insights and skills relevant to policy development in related areas.

**Program Structure:**

Students undertaking the Graduate Diploma in Defence Studies are required to take one keystone course (12UOC) and additional coursework totalling 24UOC from the courses set out above under the Master of Defence Studies. As with the Masters, students may elect either to specialise in a particular area or to complete a more broadly based qualification.

Students may, with the approval of the Program Authority, take one course (6UOC) from a related coursework program. The ZHSS8212 *Research Project - History* or ZHSS8400 *Research Project - Politics* is not available to candidates for the Graduate Diploma.

**Academic Rules:**

*The rules for the degree of Graduate Diploma of Arts, Graduate Diploma of Defence Studies, Graduate Diploma of Engineering Science, Graduate Diploma of Management Studies and Graduate Diploma of Science are identical. Please refer to rules set out under the Graduate Diploma of Arts on page 169.*

## PROGRAM INFORMATION

### Graduate Certificate in Defence Studies – 7384

**Program Summary:****Faculty:** UNSW@ADFA**School:** School of Humanities and Social Sciences**Campus:** ADFA**Award:** 7384 Graduate Certificate in Defence Studies (GradCertDefStud)**Career:** Postgraduate**Duration:** Six months full-time or part-time equivalent**UOC per session:** 24UOC (full-time)**UOC for award:** 24UOC**Program Structure:**

***This is an exit-only program. It will not be available to commencing students.***

Students undertaking the Graduate Certificate in Defence Studies are required to complete two Keystone courses (24UOC). The available Keystone courses will vary from year to year. They are set out in the schedule of courses on page 212.

**Academic Rules:**

***The rules for the degree of Graduate Certificate of Defence Studies, Graduate Certificate of Engineering Science, Graduate Certificate of Management Studies or Graduate Certificate of Science are identical. Please refer to rules set out under the Graduate Certificate of Defence Studies below.***

1. A Graduate Certificate may be awarded by the Council to a candidate who has satisfactorily completed a program of study.

**Entry Requirements**

2. A candidate for the Certificate:
  - (1) shall have been awarded a Bachelor degree in any discipline from The University of New South Wales or equivalent qualification; or
  - (2) shall submit evidence of such academic and/or professional qualifications and/or significant work experience of a related nature as may be approved by the Postgraduate Coursework Education Committee of the University College (hereinafter referred to as the Committee).

**Notes:**

1. "equivalent qualification" means an equivalent qualification from a tertiary institution at a level acceptable to the Committee.
2. Entry to all Graduate Certificate programs is subject to the recommendation of the relevant authority.
3. An applicant who has obtained suitable units of credit in the equivalent Masters or Graduate Diploma program of UNSW@ADFA but has not taken out the Masters or Graduate Diploma degree may apply to be admitted to a Graduate Certificate program and to be granted credit for work completed in, or be deemed to have met the requirements of, the Graduate Diploma program.

**Enrolment and Progression**

4. (1) An application to enrol as a candidate for the Certificate shall be made on the prescribed form which shall be lodged with Student Administrative Services by the advertised date.
- (2) A candidate for the Certificate shall be required to undertake such formal courses and pass such assessment as prescribed.
- (3) The program of study shall total a minimum of 24 units of credit.
- (4) The progress of a candidate shall be reviewed at the end of each main session by the Committee under the Academic Standing scheme. Movement between levels of academic standing is based on progress, measured by cumulative number of failures. As a result of its review the Committee may change the academic standing of a student or cancel enrolment.

## Engineering Science Programs – 8569, 5889, 7387

### Program Overview:

The Engineering Science Programs incorporate the following awards: 8569 Master of Engineering Science; 5889 Graduate Diploma in Engineering Science; 7387 Graduate Certificate in Engineering Science. The Engineering Science programs offers the opportunity to pursue graduate-level study in the traditional engineering discipline areas. In addition to a broad range of technical and professional engineering courses, there is the opportunity for students to blend that specialist expertise with related courses in the Science and Management Studies programs. The Engineering Science program is divided into six specialisations:

- Aerospace Engineering
- C4ISREW
- Civil Engineering
- Data Communications and Analysis
- Electrical Engineering
- Project Management

The **Aerospace Engineering** specialisation was introduced in 2002 specifically to provide opportunities for ADF aerospace engineers to enhance their professional qualifications. It includes advanced studies relating to the airworthiness, reliability, maintainability and operations of aircraft and aerospace structures. Students may complement these with courses covering weapons engineering, surveillance and communications systems, systems and software engineering, and aspects of capability management and support. The Schools of Aerospace, Civil and Mechanical Engineering, Information Technology and Electrical Engineering, Business, and Physical, Environmental and Mathematical Sciences all contribute to its delivery.

A key feature of the Aerospace Engineering specialisation is to conduct each year six courses in intensive-delivery mode. These courses consist of part-time preparatory reading and exercises, a 5-day residential short course at UNSW@ADFA, and follow-up assignment work. Attendance at these courses is currently restricted to officers nominated by the ADF. A selection of the courses is also available either on campus or in distance mode in related programs.

The **C4ISREW** plan is particularly targeted at students who wish to gain high-level skills in the area of Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance and Electronic Warfare (C4ISREW). It consists of two compulsory courses (Information Operations, and C3I Systems) that fundamentally underpin the area of C4ISREW and then offers students a wide choice of relevant courses in the general area of C4ISREW.

The **Civil Engineering** and **Project Management** plans are both administered by the School of Aerospace, Civil and Mechanical Engineering. The Project Management specialisation consists of a structured plan of study offered jointly through the Schools of Aerospace, Civil and Mechanical Engineering, Business, and Information Technology and Electrical Engineering. This plan provides a comprehensive study of the principles and processes required for the delivery of a successful project. The plan critically analyses project management from philosophical, management organisation, cultural and practical viewpoints. It canvasses a wide range of decision support methodologies and software tools and techniques. The plan prepares graduates for immediate participation in the project management team.

The US-based Project Management Institute (PMI) has identified a range of study areas which, in aggregate, contribute to the knowledge base required by a project management professional. PMI has audited the key content of the Project Management Plan at UNSW@ADFA and has formally advised that it is comprehensive in the issues explored, fully in accordance with the educational objectives of PMI, and the subject matter is taught at an advanced level.

The **Data Communications and Analysis** plan is particularly targeted at students who wish to gain high-level skills in the area of Data Communications and Analysis. It offers students a range of relevant courses in the general area of data communications and analysis. Students that successfully complete the plan will have developed significant skills in this area. A significant part of the assessment of courses in this plan will be appropriate projects and practical work.

The **Electrical Engineering** specialisation includes a range of courses covering communications and surveillance, signal processing, image processing and engineering systems. Students have the flexibility to tailor their program to meet individual needs. They may select a broad range of courses or choose to specialise in a particular aspect of the discipline.

Not all courses in the Engineering programs are available each year. A schedule of courses is set out at the end of the program description.

## PROGRAM INFORMATION

### Master of Engineering Science – 8569

#### Program Summary:

**Faculty:** UNSW@ADFA

**School/s:** School of Aerospace, Civil and Mechanical Engineering; School of Information Technology and Electrical Engineering

**Campus:** ADFA

**Award:** 8569 Master of Engineering Science (MEngSc)

**Career:** Postgraduate

**Duration:** One year full-time, or equivalent part-time

**UOC per session:** Up to a maximum of 24UOC (full-time)

**UOC for award:** 48UOC

#### Program Description:

The Master of Engineering Science enables students to specialise in the following plans: Aerospace Engineering, C4ISREW, Civil Engineering, Data Communications and Analysis, Electrical Engineering, or Project Management.

#### Program Objectives and Learning Outcomes:

The Engineering Science program provides students with the opportunity to acquire high level understanding and advanced analytical skills in the key areas of Aerospace Engineering, Civil Engineering, Electrical Engineering and Project Management. Coverage of courses in this program spans the engineering disciplines and the management of projects frequently incorporating those engineering disciplines. There is strong emphasis on extending undergraduate skills and knowledge and vocational experiences to enable graduates to apply their high level understanding to real world complex engineering problems and their management.

#### Program Structure:

Students undertaking the Master of Engineering Science program must satisfy the core and elective course requirements specified in the particular plan in which they are enrolled. The elective options provide the flexibility to tailor the degree to meet individual needs and requirements. Students are required to complete 8 coursework units (48UOC) from the core and elective courses set out on page 213. Each course is worth 6UOC.

#### Academic Rules:

*The rules for the degree of Master of Arts, Master of Defence Studies, Master of Engineering Science, Master of Management Studies or Master of Science are identical. Please refer to rules set out under the Master of Arts on page 179.*

## PLAN INFORMATION

### Plans available in the Master of Engineering Science Program

To undertake a Master of Engineering Science degree, students must meet the requirements of one of the specified plans of study.

#### MEngSc in Aerospace Engineering

##### Plan Overview

**Plan Code** AMECCS8568

**Faculty** UNSW@ADFA

**School** School of Aerospace, Civil and Mechanical Engineering

**Contact** Dr A. G. Sreenatha, Plan Co-ordinator

##### Plan Description

The Master of Engineering Science in Aerospace Engineering has been developed specifically to meet the professional development needs of aerospace engineers within the Australian Defence Force (ADF). It is designed for officers with appropriate undergraduate qualifications in a relevant engineering discipline and/or extensive professional experience to develop an advanced appreciation of the principles and practice of aerospace engineering and the processes by which aerospace capabilities are developed and maintained.

##### Plan Structure

Students undertaking the MEngSc in Aerospace Engineering are required to take 8 coursework courses (48UOC) from core and elective courses in accordance with the conditions set out on page 213. Each course is worth 6UOC.

Enrolment in the plan in 2006 will be restricted to nominated ADF officers. Individual courses may be available to other students.

***Enrolment in this plan in 2006 will be restricted to nominated ADF Officers. Individual courses may be available to other students.***

Students are required to complete 4 core courses:

ZACM8305	<i>Civilian and Military Airworthiness Requirements, Philosophies and Procedures</i>
ZBUS8302	<i>Logistics</i>
ZITE8226	<i>Systems Engineering Practice</i>
ZPEM8308	<i>Reliability and Maintainability</i>

Of the four elective courses, two must be chosen from:

ZACM8302	<i>Aero-Mechanical Systems</i>
ZACM8304	<i>Aircraft Structural Repair Methodologies</i>
ZACM8307	<i>Weapons Engineering</i>
ZACM8324	<i>Project Administration</i>
ZACM8327	<i>Maximum Entropy Analysis</i>
ZBUS8105	<i>Finance and Investment Appraisal</i>
ZITE8215	<i>Principles of Modern Communications and Information Systems</i>
ZITE8216	<i>Principles of Software Engineering</i>
ZITE8217	<i>Principles of Surveillance Technologies</i>
ZITE8219	<i>Satellite Communications</i>

With the approval of the Plan Authority, students may take a research project – ZACM8502 *Project Report - Aerospace Engineering* (12UOC) - in place of any two of the elective courses.

In addition to the 6 courses required for completion of the plan, students may take the optional course ZACM8306 *Professional Practice - Aerospace Engineering*.

Subject to the above conditions, students may, with the approval of the Program Authority, take up to two courses (12UOC) from related coursework programs. Full details of Engineering courses available in 2006 may be found in the Course Catalogue on page 223.

## MEngSc in C4ISREW

### Plan Overview

<b>Plan Code</b>	<b>ZITECC8569</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The MEngSc in C4ISREW is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant engineering discipline and/or extensive professional experience who wish to develop a high level understanding of the principles and practices of C4ISREW and to strengthen their skills in this area.

### Plan Structure

Students undertaking the MEngSc in C4ISREW are required to take 8 coursework courses (48UOC) from the courses set out on page 214. Students must complete two compulsory courses and four elective courses from the list below. Not all elective courses will be available in a particular year. Full details of Engineering courses available in 2006 may be found in the Course Catalogue on page 237.

#### Compulsory

ZITE8102	<i>C3I Systems</i>
ZITE8115	<i>Information Operations</i>

#### Electives

ZITE8104	<i>Computer Security</i>
ZITE8106	<i>Cryptography</i>
ZITE8110	<i>Decision Support Systems</i>
ZITE8119	<i>Internetworking</i>
ZITE8129	<i>Multimedia and Virtual Environments</i>
ZITE8203	<i>Advanced Sigital Signal Processing Techniques</i>
ZITE8204	<i>Airborne Radar</i>
ZITE8206	<i>Digital Communications</i>
ZITE8208	<i>Digital Video Communications</i>
ZITE8213	<i>Mobile Communications</i>
ZITE8219	<i>Satellite Communications</i>
ZITE8221	<i>Spaceborne Imaging Technology</i>
ZITE8227	<i>Digital Image Processing and Enhancement</i>
ZITE8228	<i>Modern Signal Estimation and Filtering Techniques</i>
ZITE8403	<i>Decision Analysis</i>

Students may, with the approval of the Plan Authority, take up to two courses (12UOC) from other Master of Engineering Science plans or other coursework programs.

### Research Project:

The option of a ZITE8299 *Project Report – Electrical Engineering* is available to Masters students who attain a high credit average or better in four courses and is subject to approval of the Plan Authority. ZITE8299 *Project Report – Electrical Engineering* is recommended for those with a strong interest in pursuing original research in a particular area or intending to undertake a higher level research qualification. Students undertaking ZITE8299 *Project Report – Electrical Engineering* are unable to take courses from other coursework programs.

## MEngSc in Civil Engineering

### Plan Overview

<b>Plan Code</b>	<b>ACIVAS8568</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Aerospace, Civil and Mechanical Engineering</b>
<b>Contact</b>	<b>A/Prof S. R. Yeomans, Plan Co-ordinator</b>

### Plan Description

The Master of Engineering Science in Civil Engineering is designed to provide postgraduate scholars and professional officers with appropriate undergraduate qualifications in a relevant engineering discipline and/or extensive professional experience with the opportunity to pursue more advanced studies in specific aspects of Civil Engineering.

The School of Aerospace, Civil and Mechanical Engineering has expertise in a range of areas including geotechnical and materials engineering, structural engineering, coastal engineering, blast and impulse effects on structures, and environmental engineering. Apart from the project management courses set out on page 213 in the MEngSc in Project Management, advanced courses in these technical areas of civil engineering are not presented on a regular basis. Students wishing to pursue a postgraduate coursework qualification in civil engineering should discuss the options with the Plan Authority.

### Plan Structure

Students undertaking the MEngSc in Civil Engineering are required to take 8 coursework courses (48UOC). At least six of these courses must be taken from those offered by the School of Aerospace, Civil and Mechanical Engineering. Each course is worth 6UOC. All 8 courses may be taken from the offerings of the School of Aerospace, Civil and Mechanical Engineering if so desired.

With the approval of the Plan Authority, students may take a research project – ZACM8501 *Project Report - Civil Engineering* (12UOC) in place of any two courses.

Subject to the approval of the Program Authority, students may elect to take up to two additional courses (12UOC) from related coursework programs. Full details of Engineering courses available in 2006 may be found in the Course Catalogue on page 223.

## MEngSc in Data Communications and Analysis

### Plan Overview

<b>Plan Code</b>	<b>ZITEDC8568</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The MEngSc in Data Communications and Analysis is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant engineering discipline and/or extensive professional experience who wish to develop a high level understanding of the principles and practices of data communications and analysis and to strengthen their skills in this area.

### Plan Structure

Students undertaking the MEngSc in Data Communications and Analysis are required to take 8 coursework courses (48UOC) from the courses set out on page 214. Students must complete six elective courses from the list below. Not all elective courses will be available in a particular year. Full details of Engineering courses available in 2006 may be found in the Course Catalogue on page 237.

### Electives

ZITE8104	<i>Computer Security</i>
ZITE8106	<i>Cryptography</i>
ZITE8119	<i>Internetworking</i>
ZITE8141	<i>WAN Technologies</i>
ZITE8203	<i>Advanced Digital Signal Processing Techniques</i>
ZITE8206	<i>Digital Communications</i>
ZITE8208	<i>Digital Video Communications</i>
ZITE8213	<i>Mobile Communications</i>
ZITE8214	<i>Neural Networks</i>
ZITE8219	<i>Satellite Communications</i>
ZITE8221	<i>Spaceborne Imaging Technology</i>
ZITE8227	<i>Digital Image Processing and Enhancement</i>
ZITE8228	<i>Modern Signal Estimation and Filtering Techniques</i>

Students may, with the approval of the Plan Authority, take up to two courses (12UOC) from other Master of Engineering Science plans or other coursework programs.

### Research Project:

The option of a ZITE8299 *Project Report – Electrical Engineering* is available to Masters students who attain a high credit average or better in four courses and is subject to approval of the Plan Authority. ZITE8299 *Project Report – Electrical Engineering* is recommended for those with a strong interest in pursuing original research in a particular area or intending to undertake a higher level research qualification. Students undertaking ZITE8299 *Project Report – Electrical Engineering* are unable to take courses from other coursework programs.

## MEngSc in Electrical Engineering

### Plan Overview

<b>Plan Code</b>	<b>AELEAS8568</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The Master of Engineering Science in Electrical Engineering meets the needs of postgraduate scholars and professional officers with appropriate undergraduate qualifications in a relevant engineering discipline and/or extensive professional experience seeking to develop an advanced appreciation of the principles of electrical engineering and their professional application.

Students undertaking the MEngSc in Electrical Engineering have the flexibility to tailor their degree to meet their individual needs and interests. While the courses are broadly grouped to reflect different aspects of the discipline, students may elect either to specialise in a particular area or to complete a more broadly based qualification.

### Plan Structure

Students are required to take 8 coursework courses (48UOC) from the courses set out on page 215. Each course is worth 6UOC. The course groupings suggest the selection of course students might undertake should they wish to specialise in that area.

### Communications:

ZITE8119	<i>Internetworking</i>
ZITE8201	<i>Adaptive Antenna Arrays</i>
ZITE8202	<i>Advanced Data Networks</i>
ZITE8205	<i>Antennas</i>
ZITE8206	<i>Digital Communications</i>
ZITE8213	<i>Mobile Communications</i>
ZITE8215	<i>Principles of Modern Communications and Information Systems</i>

### Signal Processing:

ZITE8105	<i>Computer Speech Processing</i>
ZITE8106	<i>Cryptography</i>
ZITE8203	<i>Advanced Digital Signal Processing Techniques</i>
ZITE8204	<i>Airborne Radar</i>
ZITE8214	<i>Neural Networks</i>
ZITE8228	<i>Modern Signal Estimation and Filtering Techniques</i>

### Image Processing:

ZITE8208	<i>Digital Video Communications</i>
ZITE8217	<i>Principles of Surveillance Technologies</i>
ZITE8221	<i>Spaceborne Imaging Technology</i>
ZITE8227	<i>Digital Image Processing and Enhancement</i>

### Engineering Systems:

ZITE8102	<i>C3I Systems</i>
ZITE8216	<i>Principles of Software Engineering</i>
ZITE8218	<i>Robotics</i>
ZITE8220	<i>Software Engineering</i>
ZITE8226	<i>Systems Engineering Practice</i>

Special electives are made available when suitable situations arise.

With the approval of the Plan Authority, students may take a research project – ZITE8299 *Project Report - Electrical Engineering* (12UOC) - in place of two of the above courses.

Subject to the approval of the Program Authority, students may elect to take up to two courses (12UOC) from related coursework programs. Full details of Engineering courses available in 2006 may be found in the Course Catalogue on page 237.

## MEngSc in Project Management

### Plan Overview

<b>Plan Code</b>	<b>AINTJS8568</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Aerospace, Civil and Mechanical Engineering (ACME)</b>
<b>Contact</b>	<b>ACME School Office</b>

### Plan Description

The Master of Engineering Science in Project Management is designed to provide postgraduate scholars and professional officers with appropriate undergraduate qualifications in a relevant engineering discipline and/or extensive professional experience with a comprehensive study of the principles and processes required for the delivery of a successful project. It develops knowledge and analytical skills relevant to practical project management and advanced analysis of project management processes.

### Plan Structure

Students undertaking the MEngSc in Project Management are required to take 8 coursework courses (48UOC) from core and elective courses in accordance with the conditions set out on page 213. Each course is worth 6UOC.

Students are required to complete 4 core courses:

ZACM8309	<i>Project Management Body of Knowledge</i>
ZACM8324	<i>Project Administration</i>
ZACM8325	<i>System Dynamics of Project Organisation</i>
ZACM8310	<i>Project Systems Modelling</i>

Of the four elective courses, two must be chosen from:

ZACM8308	<i>Facility and Property Management</i>
ZACM8312	<i>Systems Dynamic Modelling</i>
ZACM8315	<i>Special Elective 1 (Project Management)</i>
ZACM8327	<i>Maximum Entropy Analysis</i>
ZBUS8101	<i>Strategic Management</i>
ZBUS8105	<i>Finance and Investment Appraisal</i>
ZITE8136	<i>Software Project Management</i>
ZITE8138	<i>Systems Planning</i>

With the approval of the Plan Authority, students may take a research project – ZACM8501 *Project Report – Civil Engineering* (12UOC) in place of any two of the elective courses.

Subject to the approval of the Program Authority, students may elect to take up to two courses (12UOC) from related coursework programs. Full details of Engineering courses available in 2006 may be found in the Course Catalogue on page 223.

## PROGRAM INFORMATION

### Graduate Diploma in Engineering Science – 5889

#### Program Summary:

**Faculty:** UNSW@ADFA

**School/s:** School of Aerospace, Civil and Mechanical Engineering, School of Information Technology and Electrical Engineering

**Campus:** ADFA

**Award:** 5889 Graduate Diploma in Engineering Science

**Career:** Postgraduate

**Duration:** One year full-time or part-time equivalent

**UOC per session:** Up to a maximum of 24UOC (full-time)

**UOC for award:** 36UOC

#### Program Description:

The Graduate Diploma in Engineering Science enables students to specialise in the plans of C4ISREW, Civil Engineering, Data Communications and Analysis, or Electrical Engineering.

The Graduate Diploma in Engineering Science is specially designed for students with undergraduate qualifications in a relevant discipline and/or appropriate professional experience who wish to develop an advanced understanding of C4ISREW, Civil Engineering, Data Communications and Analysis, or Electrical Engineering.

#### Program Objectives and Learning Outcomes:

The diploma is intended to provide engineering professionals with professional academic qualifications. Mature students wishing to retrain may use the Graduate Diploma as the foundation for proceeding to a Master of Engineering Science degree.

#### Program Structure:

Students undertaking the Graduate Diploma – Engineering Science satisfy the core and elective course requirements in the particular plan in which they are enrolled. Students are required to take 6 coursework units (36UOC) for core and elective courses as set out on page 213. Each course is worth 6UOC.

#### Academic Rules:

*The rules for the degree of Graduate Diploma of Arts, Graduate Diploma of Defence Studies, Graduate Diploma of Engineering Science, Graduate Diploma of Management Studies and Graduate Diploma of Science are identical. Please refer to rules set out under the Graduate Diploma of Arts on page 181.*



## PLAN INFORMATION

### Plans available in Graduate Diploma in Engineering Science Program

#### C4ISREW

##### Plan Overview

<b>Plan Code</b>	<b>ZITECC5889</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

##### Plan Description

The GradDipEngineeringScience in C4ISREW is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant discipline and/or appropriate professional experience who wish to develop an enhanced understanding of the principles and practices of C4ISREW and to strengthen their skills in this area. The diploma provides advanced professional qualifications and the foundations for students wishing to proceed to higher levels of study in the discipline.

##### Plan Structure

Students undertaking the GradDipEngineeringScience in C4ISREW are required to take 6 coursework courses (36UOC) from the courses set out on page 214. Students must complete two compulsory course and three elective courses from the list below. Not all elective courses will be available in a particular year. Full details of Engineering courses available in 2006 may be found in the Course Catalogue on page 237.

##### Compulsory

ZITE8102	<i>C3I Systems</i>
ZITE8115	<i>Information Operations</i>

##### Electives

ZITE8104	<i>Computer Security</i>
ZITE8106	<i>Cryptography</i>
ZITE8110	<i>Decision Support Systems</i>
ZITE8119	<i>Internetworking</i>
ZITE8129	<i>Multimedia and Virtual Environments</i>
ZITE8145	<i>Soft Computing</i>
ZITE8208	<i>Digital Video Communications</i>
ZITE8219	<i>Satellite Communications</i>
ZITE8221	<i>Spaceborne Imaging Technology</i>
ZITE8227	<i>Digital Image Processing and Enhancement</i>
ZITE8403	<i>Decision Analysis</i>

Students may, with the approval of the Plan Authority, take up to one course (6UOC) from other Master of Engineering Science plans or other coursework programs.

The ZITE8199 *Project – Information Technology* is not available to candidates for the Graduate Diploma.

## Civil Engineering

##### Plan Overview

<b>Plan Code</b>	<b>ACIVAS7392</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Aerospace, Civil and Mechanical Engineering (ACME)</b>
<b>Contact</b>	<b>ACME School Office</b>

##### Plan Description

The diploma may be obtained in Civil Engineering.

##### Plan Structure

Students undertaking the Graduate Diploma in Engineering are required to take 6 coursework courses (36UOC) from the courses set out above under the respective Civil Engineering (and Project Management) and Electrical Engineering Masters programs. As with the Masters, students may elect either to specialise in a particular area or to complete a more broadly based qualification.

Students may, with the approval of the Program Authority, take one course (6UOC) from a related coursework program. ZACM8501 *Project Report – Civil Engineering* (12UOC) - is not available to candidates for the Graduate Diploma.

Students at the Graduate Diploma level are expected to possess the foundation knowledge relevant to the particular areas of engineering they are studying. Full details of Engineering courses available in 2006 may be found in the Course Catalogue on page 223.

## Data Communications and Analysis

##### Plan Overview

<b>Plan Code</b>	<b>ZITEDC5889</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

##### Plan Description

The GradDipEngSc in Data Communications and Analysis designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant engineering discipline and/or appropriate professional experience who wish to develop an enhanced understanding of the principles and practices of data communications and analysis and to strengthen their skills in this area. The diploma provides advanced professional qualifications and the foundations for students wishing to proceed to higher levels of study in the discipline.

## Plan Structure

Students undertaking the GradDipEngSc in Data Communications and Analysis are required to take 6 coursework courses (36UOC) from the courses set out on page 214. Students must complete five elective courses from the list below. Not all elective courses will be available in a particular year. Full details of Engineering courses available in 2006 may be found in the Course Catalogue on page 237.

### Electives

ZITE8104	<i>Computer Security</i>
ZITE8106	<i>Cryptography</i>
ZITE8119	<i>Internetworking</i>
ZITE8141	<i>WAN Technologies</i>
ZITE8203	<i>Advanced Digital Signal Processing Techniques</i>
ZITE8206	<i>Digital Communications</i>
ZITE8208	<i>Digital Video Communications</i>
ZITE8213	<i>Mobile Communications</i>
ZITE8214	<i>Neural Networks</i>
ZITE8219	<i>Satellite Communications</i>
ZITE8221	<i>Spaceborne Imaging Technology</i>
ZITE8227	<i>Digital Image Processing and Enhancement</i>
ZITE8228	<i>Modern Signal Estimation and Filtering Techniques</i>

Students may, with the approval of the Plan Authority, take up to one course (6UOC) from other Master of Engineering Science plans or other coursework programs. The ZITE8299 *Project Report – Electrical Engineering* is not available to candidates for the Graduate Diploma.

## Electrical Engineering

### Plan Overview

<b>Plan Code</b>	<b>AEEAS7393</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The diploma may be obtained in Electrical Engineering.

### Plan Structure

Students undertaking the Graduate Diploma in Engineering are required to take 6 courses (36UOC) from the courses set out above under the respective Electrical Engineering Masters programs. As with the Masters, students may elect either to specialise in a particular area or to complete a more broadly based qualification.

Students may, with the approval of the Program Authority, take one course (6UOC) from a related coursework program. The ZITE8299 *Project Report Electrical Engineering* (12UOC) - is not available to candidates for the Graduate Diploma.

Students at the Graduate Diploma level are expected to possess the foundation knowledge relevant to the particular areas of engineering they are studying.

Full details of Engineering courses available in 2006 may be found in the Course Catalogue on page 237.

## PROGRAM INFORMATION

### Graduate Certificate in Engineering Science – 7387

#### Program Summary:

<b>Faculty:</b>	UNSW@ADFA
<b>School:</b>	School of Information Technology and Electrical Engineering
<b>Campus:</b>	ADFA
<b>Award:</b>	7387 Graduate Certificate in Engineering Science (GradCertEngSc)
<b>Career:</b>	Postgraduate
<b>Duration:</b>	One session full-time or part-time equivalent
<b>UOC per session:</b>	24UOC (full-time)
<b>UOC for award:</b>	24UOC

#### Program Description:

The Graduate Certificate in Engineering Science enables students to specialise in Electrical Engineering. The Graduate Certificate in Engineering Science is specially designed for students with an undergraduate degree or established profession in another field who wish to gain an understanding of Electrical Engineering.

#### Program Objectives and Learning Outcomes:

The certificate is intended to assist professionals in coming to terms with modern technology and its use. Mature students wishing to retrain may use the Graduate Certificate as the first step in an articulated sequence of study to Graduate Diploma and Masters of Engineering Science qualifications.

#### Program Structure:

Students entering the program at the Graduate Certificate level are required to complete four foundation courses (24UOC) from those nominated by the School of Information Technology and Electrical Engineering. The range of courses offered will vary and students wishing to undertake a Graduate Certificate in Engineering Science should discuss the options with the Plan Authority.

#### Academic Rules:

*The rules for the degree of Graduate Certificate of Arts, Graduate Certificate of Defence Studies, Graduate Certificate of Engineering Science, Graduate Certificate of Management Studies or Graduate Certificate of Science are identical. Please refer to rules set out under the Graduate Certificate of Defence Studies on page 185.*

## PLAN INFORMATION

### Plan available in Graduate Certificate in Engineering Science Program

#### Civil Engineering

##### Plan Overview

<b>Plan Code</b>	ACIVAS5889
<b>Faculty</b>	UNSW@ADFA
<b>School</b>	School of Aerospace, Civil and Mechanical Engineering (ACME)
<b>Contact</b>	ACME School Office

##### Plan Description

The GradCertEngSc in Civil Engineering is available to members of the ADF undertaking the RAE Regimental Officers Basic Course (ROBC) at the School of Military Engineering, Moorebank. New admissions to the plan in 2006 will not be accepted, admissions for 2006 will be subject to a review of the plan.

#### Electrical Engineering

##### Plan Overview

<b>Plan Code</b>	AELEAS5889
<b>Faculty</b>	UNSW@ADFA
<b>School</b>	School of Information Technology and Electrical Engineering
<b>Contact</b>	Dr C. Lokan, Postgraduate Coursework Co-ordinator

##### Plan Description

The certificate may be obtained in Electrical Engineering.

##### Plan Structure

The foundation courses available in the GradCertEngSc in Electrical Engineering are set out in the Schedule of Courses on page 198. Full details of Engineering courses available in 2006 may be found in the Course Catalogue on page 237.

New admissions to the plan in 2006 will not be accepted, admissions after 2006 will be subject to a review of the plan.

## Management Studies Programs – 8398, 5823, 7393

##### Program Overview

The Graduate Management Studies Program incorporates the following awards: 8398 Master of Management Studies; 5823 Graduate Diploma in Management Studies; 7393 Graduate Certificate in Management Studies.

The Graduate Management Studies Program addresses the decision-making processes and techniques by which private and public sector organisations make the most effective use of their resources. It draws on a variety of disciplines including economics, engineering, computer science and law and aims to develop skills in quantitative and qualitative analysis relevant to management issues.

The program provides students with the opportunity to acquire a high level understanding of the principles and practice of management and to develop expertise within specific areas of the discipline. Students may choose either to pursue a general management qualification or to complete one of five specialisations in particular areas of management:

- Defence Capability Development & Acquisition
- Equipment and Technology
- General Management
- Human Resource Management
- Project Management

The **Defence Capability Development and Acquisition** specialisation develops a thorough understanding of the managerial and technical skills and expertise relevant to the planning for and acquisition of military systems and required for employment in the process of procuring defence materiel. The plan has been specifically developed to meet the requirements of the Australian Technical Staff Officers' Course (ATSOC) which prepares students to take up technical staff appointments within the Australian Defence Organisation.

The **Equipment and Technology** specialisation encompasses the acquisition, financing, and management of capital and technological assets, and the logistic systems enabling these processes. It considers the varied dimensions of technology and analyses how organisations may manage technology to achieve their objectives in a turbulent environment. It addresses key aspects of performance in both the public sector and business organisations and explores logistics and acquisition management in different organisational environments.

The **General Management** approach provides a high level understanding of management theory and approaches to management practice and a systematic treatment of the principal elements of contemporary management knowledge. It is a well-rounded qualification linking strategic management concepts with insights into the organisational, human resource, financial and legal aspects of the field.

The **Human Resource Management** specialisation provides a thorough understanding of the development and management of human resources in organisations. It examines key elements of managing people in varying organisational environments and at different organisational levels. Particular attention is given to applications of human resource management skills in public sector settings, including the Defence organisation in Australia, and to leadership in the development of human resources in organisations.

The **Project Management** specialisation provides a comprehensive understanding of the principles and processes that underpin effective project management. It identifies the key components of project management in different organisational environments and examines the roles and responsibilities of project managers. Students are introduced to a range of project management tools and procedures.

Not all courses in the Management Studies programs are available each year. A schedule of courses is set out at the end of the program description.

## PROGRAM INFORMATION

### Master of Management Studies – 8398

#### Program Summary:

**Faculty:** UNSW@ADFA

**School:** School of Business

**Campus:** ADFA

**Award:** 8398 Master of Management Studies (MMgtStud)

**Career:** Postgraduate

**Duration:** 1 year full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 48UOC

#### Program Description:

The Master of Management Studies is designed for postgraduate scholars and professional managers with appropriate undergraduate qualifications in management or a related discipline and/or extensive relevant professional experience who wish to gain a more detailed understanding of the concepts and principles that underpin effective management and their application in specific areas of organisation and management.

#### Program Objectives and Learning Outcomes:

The Master of Management Studies provides comprehensive insights and analytical skills relevant to the development of enhanced management practice and a foundation for more advanced postgraduate study. It enables students to specialise in the areas of General Management, Human Resource Management, Equipment and Technology Management, Project Management, and Defence Capability Development and Acquisition.

#### Program Structure:

Students undertaking the Master of Management Studies are required to structure their studies according to a coherent plan and must fulfil the requirements of a specified plan of study. They must complete 8 coursework courses (48UOC) from core and elective courses in accordance with the conditions set out on page 216. Each course is worth 6UOC.

The option of a research project – ZBUS8501 *Research Project – Management Studies* (12UOC) – is available to Master students who attain a high credit average or better in four courses and is subject to the approval by the Head of School. The Research Project is recommended for those with a strong interest in pursuing original research in a particular area or intending to undertake a higher level research qualification.

Before entering specialised plans, candidates are expected to possess relevant bodies of knowledge available in Foundation courses. In particular, foundation-level knowledge is required in areas covered in the courses: ZBUS7103 *Economics for Managers*, ZBUS7102 *Introduction to Project Management*, ZBUS7101 *Introduction to Management*, and ZPEM7301 *Introduction to Data Analysis*. However, candidates entering these specialisations may self-assess in respect of whether they have appropriately covered this material in previous studies or are familiar with it as a result of their professional experience.

#### Academic Rules:

*The rules for the degree of Master of Arts, Master of Defence Studies, Master of Engineering Science, Master of Management Studies or Master of Science are identical. Please refer to rules set out under the Master of Arts on page 179.*

## PLAN INFORMATION

### MMgtStud in Defence Capability Development and Acquisition

#### Plan Overview

**Plan Code** AINTMS8396

**Faculty** UNSW@ADFA

**School** School of Business

**Contact** Dr G. Manger,  
Postgraduate Coursework Co-ordinator

#### Plan Description

The Plan develops a thorough understanding of the managerial and technical skills and expertise relevant to planning and acquisition of complex military systems and procurement of other defence materiel.

## Plan Structure

The plan is designed primarily to meet the requirements of the Australian Technical Service Officers Course (ATSOC); some courses may have quotas and are also taught at times appropriate to ATSOC needs.-

To complete the requirements of the MMgtStud in Defence Capability Development and Acquisition, non-ATSOC students must complete:

ZBUS8101	<i>Strategic Management</i>
ZBUS8302	<i>Logistics</i>
ZBUS8303	<i>Strategic Procurement</i>
ZINT8326	<i>Defence Capability and Project Management</i>
ZITE7203	<i>Communications and Information Systems</i>
ZITE7205	<i>Fundamentals of Surveillance Technologies</i>
ZITE8226	<i>Systems Engineering Practice</i>

plus one course out of:

ZACM8303	<i>Aerospace Vehicle Technologies</i>
ZACM8326	<i>Vehicles and Mobility</i>

Full details of Management Studies courses available in 2006 may be found in the Course Catalogue on page 227.

## Australian Technical Staff Officers' Course (ATSOC)

The Australian Technical Staff Officers' Course (ATSOC) is an Australian Army course, conducted at UNSW@ADFA and designed to prepare students to take up technical staff appointments within the Australian Defence Organisation. The twelve month, full-time program requires students to complete a specific program within the Graduate Management Studies program at Masters level, the Defence Capability Development and Acquisition plan.

Candidates are nominated by Defence for the Australian Technical Staff Officers' Course (ATSOC) and must meet UNSW@ADFA entry requirements. In addition to completing the award program, students undertake technical staff training not offered by UNSW@ADFA and a domestic and international visit program.

Students attending the Australian Technical Staff Officers Course are required to complete the following program of academic study.

ZBUS8302	<i>Logistics</i>
ZBUS8401	<i>Team Project - Technology Management</i>
ZINT8301	<i>Firepower and Protection</i>
ZINT8326	<i>Defence Capability and Project Management</i>
ZITE7203	<i>Communications &amp; Information Systems</i>
ZITE7205	<i>Fundamentals of Surveillance Technologies</i>
ZITE8226	<i>Systems Engineering Practice</i>

plus one course out of:

ZACM7303	<i>Aerospace Vehicle Technologies</i>
ZACM7326	<i>Military Vehicles and Mobility</i>

The Military Technology course ZINT7301 *Firepower and Protection* is only available to ATSOC students or other Australian Defence Organisation personnel on approval from the Director ATSOC.

## Plans available in the Master of Management Studies Program

### MMgtStud in Equipment and Technology

#### Plan Overview

<b>Plan Code</b>	<b>AECMGS8396</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Business</b>
<b>Contact</b>	<b>Dr G. Manger, Postgraduate Coursework Co-ordinator</b>

#### Plan Description

The Plan offers a high level understanding of the acquisition, financing and management of capital and technological assets, and the logistic systems enabling these processes.

#### Plan Structure

To complete the requirements of the MMgtStud in Equipment and Technology Management, students must complete:

ZBUS8101	<i>Strategic Management</i>
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plus four of the following:

ZBUS8105	<i>Finance and Investment Appraisal</i>
ZBUS8301	<i>Technology and Innovation</i>
ZBUS8302	<i>Logistics</i>
ZBUS8303	<i>Strategic Procurement</i>
ZBUS8304	<i>Case Studies in Technology Management</i>

and any three other GradDip/Masters level courses in the Management Studies program. Students may, with the approval of the Program Authority, take up to two courses (12UOC) from related coursework programs. Full details of Management Studies courses available in 2006 may be found in the Course Catalogue on page 227.

#### Foundation Knowledge

Candidates are expected to possess bodies of knowledge available in a number of foundation courses. In particular, foundation-level knowledge is required in areas covered in the courses ZBUS7103 *Economics for Managers*, ZBUS7102 *Introduction to Project Management* and ZPEM7301 *Introduction to Data Analysis*.

## MMgtStud in General Management

### Plan Overview

<b>Plan Code</b>	<b>AINTF8396</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Business</b>
<b>Contact</b>	<b>Dr G. Manger, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The Plan provides a high level understanding of management theory and approaches to management practice and systematic treatment of the principal elements of contemporary management knowledge.

### Plan Structure

To complete the requirements of the MMgtStud in General Management, students must complete:

ZBUS8101	<i>Strategic Management</i>
ZBUS8102	<i>Organisational Behaviour</i>
ZBUS8103	<i>Human Resource Management</i>
ZBUS8104	<i>Legal Process and Procedure</i>
ZBUS8105	<i>Finance and Investment Appraisal</i>

and any three other GradDip/Masters level courses in the Management Studies program. Students may, with the approval of the Program Authority, take up to two courses (12UOC) from related coursework programs. Full details of Management Studies courses available in 2006 may be found in the Course Catalogue on page 227.

### Foundation Knowledge

Candidates are expected to possess bodies of knowledge available in a number of foundation courses. In particular, foundation-level knowledge is required in areas covered in the courses ZBUS7103 *Economics for Managers* and ZBUS7101 *Introduction to Management*.

## MMgtStud in Human Resource Management

### Plan Overview

<b>Plan Code</b>	<b>AECMDS8396</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Business</b>
<b>Contact</b>	<b>Dr G. Manger, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The plan provides a high level understanding of the development and management of human resources in organisations including those operating in the public sector such as Defence.

### Plan Structure

To complete the requirements of the MMgtStud in Human Resource Management, students must complete:

ZBUS8101	<i>Strategic Management</i>
ZBUS8102	<i>Organisational Behaviour</i>
ZBUS8103	<i>Human Resource Management</i>

plus two of the following:

ZBUS8201	<i>Leadership in Organisations</i>
ZBUS8202	<i>Public Sector Human Resource Management</i>
ZBUS8203	<i>Organisational Development and Change</i>

and any three other GradDip/Masters level courses in the Management Studies program. Students may, with the approval of the Program Authority, take up to two courses (12UOC) from related coursework programs. Full details of Management Studies courses available in 2006 may be found in the Course Catalogue on page 227.

### Foundation Knowledge

Candidates are expected to possess bodies of knowledge available in a number of foundation courses. In particular, foundation-level knowledge is required in areas covered in the courses ZBUS7103 *Economics for Managers* and ZBUS7101 *Introduction to Management*.

## MMgtStud in Project Management

### Plan Overview

<b>Plan Code</b>	<b>AINTJS8396</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Business</b>
<b>Contact</b>	<b>Dr G. Manger, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The Plan offers a comprehensive understanding of the principles and processes that underpin effective project management.

### Plan Structure

To complete the requirements of the MMgtStud in Project Management, students must complete:

ZACM8309	<i>Project Management Body of Knowledge</i>
ZACM8324	<i>Project Administration</i>
ZACM8325	<i>System Dynamics of Project Organisation</i>
ZBUS8101	<i>Strategic Management</i>

plus any two of the following:

ZACM8308	<i>Facilities and Property Management</i>
ZACM8310	<i>Project Systems Modelling</i>
ZACM8313	<i>Source Selection in Projects</i>
ZBUS8105	<i>Finance and Investment Appraisal</i>
ZITE8136	<i>Software Project Management</i>

and any two other Masters level courses in the Management Studies program. Students may, with the approval of the Program Authority, take up to two courses (12UOC) from related coursework programs.

Full details of Management Studies courses available in 2006 may be found in the Course Catalogue on page 227.

**Foundation Knowledge**

Candidates are expected to possess bodies of knowledge available in a number of foundation courses. In particular, foundation-level knowledge is required in areas covered in the courses ZBUS7102 *Introduction to Project Management* and ZPEM7301 *Introduction to Data Analysis*.

**PROGRAM INFORMATION****Graduate Diploma in Management Studies – 5823****Program Summary:**

**Faculty:** UNSW@ADFA

**School:** School of Business

**Campus:** ADFA

**Award:** 5823 Graduate Diploma in Management Studies (GradDipMgtStud)

**Career:** Postgraduate

**Duration:** 1 year full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 36UOC

**Program Description:**

The Graduate Diploma in Management Studies is designed for postgraduate scholars and professional managers with undergraduate qualifications in a relevant discipline and/or appropriate professional experience who wish to gain a more detailed understanding of the concepts and principles that underpin the effective management of resources of all kinds.

**Program Objectives and Learning Outcomes:**

The program provides knowledge and analytical skills relevant to the development of enhanced management practices and provides a foundation for students wishing to proceed to more advanced study in the discipline.

**Program Structure:**

Students undertaking the Graduate Diploma in Management Studies are required to take 6 coursework courses (36UOC) from the courses set out above under the Master of Management Studies. Graduate Diploma candidates may choose to specialise (and that course is recommended if they intend to articulate subsequently to a Masters degree candidature in a particular stream) but are not obliged to do so. Students at the Graduate Diploma level are expected to possess the foundation knowledge relevant to the particular areas of management they are studying.

Students may, with the approval of the Program Authority, take one course (6UOC) from a related coursework program. The ZBUS8501 *Research Project* (12UOC) - is not available to candidates for the Graduate Diploma.

**Academic Rules:**

The rules for the degree of Graduate Diploma in Arts, Graduate Diploma in Defence Studies, Graduate Diploma in Engineering Science, Graduate Diploma in Management Studies and Graduate Diploma in Science are identical. Please refer to rules set out under Graduate Diploma in Arts on page 181.

**PROGRAM INFORMATION****Graduate Certificate in Management Studies – 7383****Program Summary:**

**Faculty:** UNSW@ADFA

**School:** School of Business

**Campus:** ADFA

**Award:** 7383 Graduate Certificate in Management (GradCertMgtStud)

**Career:** Postgraduate

**Duration:** One session full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 24UOC

**Program Description:**

The Graduate Certificate in Management Studies is designed for postgraduate scholars without relevant undergraduate qualifications or appropriate professional experience in management seeking an understanding of the principles and practice of management. It provides key foundations essential to successful management and gives students the opportunity to demonstrate a capacity to proceed to more advanced study in the discipline.

**Program Objectives and Learning Outcomes:**

The GradCertMgtStud forms the first step in an articulated sequence of study to Graduate Diploma and Masters qualifications. The Certificate also allows students with the relevant academic or professional background to acquire a qualification for advanced study in a more specialised aspect of the program without the need to complete all the requirements of a Graduate Diploma or Masters degree.

**Program Structure:**

Students undertaking the Graduate Certificate are required to complete 4 foundation courses (24UOC). The courses offer both a broad introduction to advanced studies in management and the foundations for undertaking a more specialised stream at either the Graduate Diploma or Masters level. The foundation courses are:

ZBUS7101	<i>Introduction to Management</i>
ZBUS7102	<i>Introduction to Project Management</i>
ZBUS7103	<i>Economics for Managers</i>
ZITE7401	<i>Introduction to Management Science</i>
ZPEM7301	<i>Introduction to Data Analysis</i>

Full details of Management Studies courses available in 2006 may be found in the Course Catalogue on page 227.

### Academic Rules:

*The rules for the degree of Graduate Certificate in Arts, Graduate Certificate in Defence Studies, Graduate Certificate in Engineering Science, Graduate Certificate in Management Studies and Graduate Certificate in Science are identical. Please refer to rules set out under Graduate Certificate in Defence Studies on page 185.*

## Science Programs – 8562, 5882, 7382

### Program Overview

The Science Programs incorporate the following awards: 8562 Master of Science; 5882 Graduate Diploma in Science; 7382 Graduate Certificate in Science.

The Science program is being developed to provide students with the opportunity to acquire high level understanding and advanced analytical and professional skills in key areas of the science disciplines. There is a significant emphasis on integrating the various disciplinary approaches that can be applied to particular discipline areas and on students acquiring both the concepts which underpin an area of scientific enquiry and an understanding of how they are translated into practical applications.

The development of several major specialisations within the Science program is being considered. Currently, specialisations are available, drawing upon the strengths of the University's current postgraduate coursework programs in Science. The specialisations are:

- C4ISREW
- Defence Operations Research
- ICT Management
- Information Technology
- Information Technology – Enterprise Architecture
- Operations Research and Statistics
- Software Development
- Systems Network Administration
- Web Technologies

The **C4ISREW** plan is particularly targeted at students who wish to gain high-level skills in the area of Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance and Electronic Warfare (C4ISREW). It consists of two compulsory courses (Information Operations, and C3I Systems) that fundamentally underpin the area of C4ISREW and then offers students a wide choice of relevant courses in the general area of C4ISREW.

The **Defence Operations Research** specialisation provides a comprehensive understanding of decision making, analysis and operations research techniques relevant to researchers in the Defence sector. **Enrolment in this plan is only available to participants in DSTO's Continuing Education Initiative.**

The **ICT Management** plan is particularly targeted at students who wish to gain high-level skills in the management of information and communications technologies (ICT). It consists of four compulsory courses that fundamentally underpin ICT management and then offers students a wide choice of relevant courses in the general area of ICT management.

The **Information Technology** specialisation offers both a comprehensive understanding of the information technology discipline together with the ability to explore specific areas in considerable depth. It is structured to provide the foundation for more advanced postgraduate study as well as to enhance the insights and skills of professional officers in the IT community.

A number of courses within the IT program have specific relevance to Defence.

The **IT–Enterprise Architecture** plan in the Master of Science is designed to provide a comprehensive understanding of enterprise architecture. It is an articulated program of study, in which students may progress through the Graduate Certificate, Graduate Diploma and MSc in Information Technology–Enterprise Architecture.

The plan will normally be available only for part time study. Each course will be offered at least once every two years. It cannot be guaranteed that a student will be able to meet the full requirements of the plan (in particular, completing all of the core courses) in a single year of full time study.

The **Operations Research and Statistics** specialisation encompasses the analytical, modelling and statistical concepts and skills necessary to undertaking advanced operations research or statistical analysis in a range of professional environments, including Defence. The courses cover decision making, problem solving and analysis, modelling and the quantitative skills necessary to inform analysis and underpin its conclusions.

The **Software Development** plan is particularly targeted at students who wish to gain high-level skills in the area of Software Development. It consists of one compulsory course (Data Structures and Algorithms) that fundamentally underpins the area of Software Development and then offers students a wide choice of relevant courses in the general area of Software Development.

The **Systems Network Administration** plan is particularly targeted at students who wish to gain high-level skills in the area of Systems and Network Administration. It consists of three compulsory courses (Internetworking, Operating Systems, and Systems & Network Administration) that fundamentally underpin the area of Systems and Network Administration and then offers students a wide choice of relevant courses in the general area of Systems and Network Administration.

The **Web Technologies** plan is particularly targeted at students who wish to gain high-level skills in the area of Web Technologies. It offers students a range of relevant courses in the general area of Web Technologies.



Students that successfully complete the plan will have developed significant skills in this area. A significant part of the assessment of courses in this plan will be appropriate projects.

Each specialisation provides the opportunity to tailor course choices to individual needs. Courses may be selected from across the discipline or to develop a comprehensive understanding of a particular discipline area.

To complete a specialisation within the Science program, students must fulfil a specified plan of study.

Not all courses in the Science programs are available each year. A schedule of courses is set out at the end of the program description.

## PROGRAM INFORMATION

### Master of Science – 8562

#### Program Summary:

**Faculty:** UNSW@ADFA

**School/s:** School of Information Technology and Electrical Engineering; School of Physical, Environmental and Mathematical Sciences

**Campus:** ADFA

**Award:** 8562 Master of Science (MSc)

**Career:** Postgraduate

**Duration:** One year full-time or part-time equivalent

**UOC per session:** 24 UOC (full-time)

**UOC for award:** 48 UOC

#### Program Description:

The Master of Science enables students to specialise in the following plans: C4ISREW, Defence Operations Research, ICT Management, Information Technology, Information Technology – Enterprise Architecture (IT – Enterprise Architecture), Operations Research and Statistics, Software Development, Systems Network Administration, Web Technologies

The generic Master of Science in Information Technology offers students a free choice from a wide range of electives. The other plans offer more targeted plans of study for students wishing to gain expertise in these areas.

#### Program Objectives and Learning Outcomes:

The program aims to allow students to develop a high level understanding of the principles that shape information technology and their implementation through the design, development and application phases.

#### Program Structure:

Students undertaking the program are required to undertake 8 courses in accord with the rules for the relevant plan as listed on page 217.

#### Academic Rules:

*The rules for the degree of Master in Arts, Master in Defence Studies, Master in Engineering Science, Master in Management Studies and Master in Science are identical. Please refer to rules set out under Master in Arts on page 179.*

#### Sample Program:

8 courses chosen in accord with the rules for the relevant plan with the exception of the Defence Operations Research plan where the Defence Operations Research project needs to be completed as well as 8 courses.

## PLAN INFORMATION

### Plans available in the Master of Science Program

#### MSc in C4ISREW

##### Plan Overview

<b>Plan Code</b>	ITEECC8562
<b>Faculty</b>	UNSW@ADFA
<b>School</b>	School of Information Technology and Electrical Engineering
<b>Award</b>	8562 Master of Science – C4ISREW (MScC4ISREW)
<b>Career</b>	Postgraduate
<b>Duration</b>	One and a half years full-time or part-time equivalent
<b>Contact</b>	Dr C. Lokan, Postgraduate Coursework Co-ordinator

##### Plan Description

The MSc in C4ISREW is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant science discipline and/or extensive professional experience who wish to develop a high level understanding of the principles and practices of C4ISREW and to strengthen their skills in this area.

##### Plan Structure

Students undertaking the MSc in C4ISREW are required to take 8 coursework courses (48UOC) from the courses set out on page 217. Students must complete two compulsory courses and four elective courses from the list below. Not all elective courses will be available in a particular year. Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

**Compulsory**

ZITE8102	<i>C3I Systems</i>
ZITE8115	<i>Information Operations</i>

**Electives**

ZITE8104	<i>Computer Security</i>
ZITE8106	<i>Cryptography</i>
ZITE8110	<i>Decision Support Systems</i>
ZITE8119	<i>Internetworking</i>
ZITE8129	<i>Multimedia and Virtual Environments</i>
ZITE8145	<i>Soft Computing</i>
ZITE8208	<i>Digital Video Communications</i>
ZITE8219	<i>Satellite Communications</i>
ZITE8221	<i>Spaceborne Imaging Technology</i>
ZITE8227	<i>Digital Image Processing and Enhancement</i>
ZITE8403	<i>Decision Analysis</i>

Students may, with the approval of the Plan Authority, take up to two courses (12UOC) from other Master of Science plans or other coursework programs.

**Research Project:**

The option of a ZITE8199 *Project – Information Technology* is available to Masters students who attain a high credit average or better in four courses and is subject to approval of the Plan Authority. ZITE8199 *Project – Information Technology* is recommended for those with a strong interest in pursuing original research in a particular area or intending to undertake a higher level research qualification. Students undertaking ZITE8199 *Project – Information Technology* are unable to take courses from other coursework programs.

**MSc in Defence Operations Research****Plan Overview**

<b>Plan Code</b>	<b>AINTDS8562</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Award</b>	<b>8562 Master of Science – Defence Operations Research (MScDOR)</b>
<b>Career</b>	<b>Postgraduate</b>
<b>Duration</b>	<b>One and a half years full-time or part-time equivalent</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

**Plan Description**

**The MSc in Defence Operations Research is only available to participants in DSTO's Continuing Education Initiative.** It is designed for postgraduate scholars with undergraduate qualifications in a relevant science discipline and/or extensive professional experience, to provide a comprehensive understanding of decision making, analysis and operations research techniques relevant to researchers in the Defence sector.

**Plan Structure**

Students undertaking the MSc in Defence Operations Research are required to meet all of the requirements for the GradDipScience in Defence Operations Research. In addition they are required to complete a research project equivalent to one session of full-time study. Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

**MSc in ICT Management****Plan Overview**

<b>Plan Code</b>	<b>ZITEIC8565</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Award</b>	<b>8562 Master of Science – ICT Management (MScICTMgt)</b>
<b>Career</b>	<b>Postgraduate</b>
<b>Duration</b>	<b>One and a half years full-time or part-time equivalent</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

**Plan Description**

The MSc in ICT Management is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant discipline and/or extensive professional experience who wish to develop a high level understanding of the principles and practices of ICT management and to strengthen their skills in this area.

**Plan Structure**

Students undertaking the MSc in ICT Management are required to take 8 coursework courses (48UOC) from the courses set out on page 218. Students must complete four compulsory courses and two elective courses from the list below. Not all elective courses will be available in a particular year. Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

**Compulsory**

ZITE8116	<i>Information Systems Policy and Strategy</i>
ZITE8136	<i>Software Project Management</i>
ZITE8138	<i>Systems Planning</i>
ZITE8144	<i>Information and Communication Technology Processes</i>

**Electives**

ZITE8104	<i>Computer Security</i>
ZITE8110	<i>Decision Support Systems</i>
ZITE8114	<i>Electronic Business</i>
ZITE8117	<i>Integrating Information Systems Technologies</i>
ZITE8118	<i>Integrating the Enterprise and IS Functions</i>
ZITE8226	<i>Systems Engineering Practice</i>

Students may, with the approval of the Plan Authority, take up to two courses (12UOC) from other Master of Science plans or other coursework programs.

## Research Project:

The option of a ZITE8199 *Project – Information Technology* is available to Masters students who attain a high credit average or better in four courses and is subject to approval of the Plan Authority. ZITE8199 *Project – Information Technology* is recommended for those with a strong interest in pursuing original research in a particular area or intending to undertake a higher level research qualification. Students undertaking ZITE8199 *Project – Information Technology* are unable to take courses from other coursework programs.

## MSc in Information Technology

### Plan Overview

<b>Plan Code</b>	ACSCDS8565
<b>Faculty</b>	UNSW@ADFA
<b>School</b>	School of Information Technology and Electrical Engineering
<b>Award</b>	8562 Master of Science - Information Technology (MScIT)
<b>Career</b>	Postgraduate
<b>Duration</b>	One year full-time or part-time equivalent
<b>Contact</b>	Dr C. Lokan, Postgraduate Coursework Co-ordinator

### Plan Description

The MSc in Information Technology is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant science discipline and/or extensive professional experience who wish to develop a high level understanding of the principles that shape information technology and their implementation through the design, development and application phases. The courses incorporate the most recent advances in the discipline, providing IT professionals with the opportunity to upgrade and extend their qualifications and experience.

### Plan Structure

Students undertaking the MSc in Information Technology are required to take 8 coursework courses (48UOC) from the courses set out on page 219. Students may select the combination of courses most appropriate to their individual needs.

### Software Development

ZITE8101	Advanced Java Programming
ZITE8103	Computer Graphics
ZITE8108	Data Structures and Algorithms
ZITE8131	Object Oriented Analysis and Design
ZITE8132	Object Oriented Programming
ZITE8134	Software Architecture
ZITE8135	Software Engineering and ADA
ZITE8140	User Interface Construction
ZITE8220	Software Engineering
ZITE8216	Principles of Software Engineering
ZITE8410	Soft Systems Methodologies

### Web Technologies

ZITE8101	Advanced Java Programming
ZITE8109	Databases and E-Commerce Transaction Management
ZITE8114	Electronic Business
ZITE8126	Languages of the Web
ZITE8129	Multimedia and Virtual Environments
ZITE8140	User Interface Construction
ZITE8142	Web Design

### Information Technology Systems Planning

ZITE8116	Information Systems Policy and Strategy
ZITE8117	Integrating Information Systems Technologies
ZITE8118	Integrating the Enterprise and IS Functions
ZITE8136	Software Project Management
ZITE8138	Systems Planning

### IT Communications and Internetworking

ZITE8104	Computer Security
ZITE8106	Cryptography
ZITE8119	Internetworking
ZITE8130	Network Management and Troubleshooting
ZITE8137	Systems and Network Administration
ZITE8139	Telecommunications Design and Management
ZITE8141	WAN Technologies
ZITE8219	Satellite Communications

### Data Mining

ZITE8107	Data Mining
ZITE8110	Decision Support Systems
ZITE8125	Knowledge Discovery in Databases

### Other IT Courses

ZITE8102	C3I Systems
ZITE8105	Computer Speech Processing
ZITE8111	Directed Studies in Information Technology 1
ZITE8112	Directed Studies in Information Technology 2
ZITE8113	Distributed Computing
ZITE8115	Information Operations
ZITE8120	IT Special Topic 1
ZITE8121	IT Special Topic 2
ZITE8122	IT Special Topic 3
ZITE8123	IT Special Topic 4
ZITE8124	Knowledge Based Systems
ZITE8127	Machine Learning
ZITE8133	Operating Systems
ZITE8199	Project - Information Technology (12UOC)
ZITE8207	Digital Image Restoration
ZITE8208	Digital Video Communications
ZITE8210	Introduction to Digital Image Processing
ZITE8214	Neural Networks
ZITE8221	Spaceborne Imaging Technology
ZITE8901	Case Studies and Information Technology
ZITE8902	Professional Practices
ZITE8903	Research Methods in Information Technology
ZPEM8202	Principles of Geographic Information Analysis and Remote Sensing

Students may, with the approval of the Plan Authority, take up to two courses (12UOC) from related coursework programs. Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

**Research Project:**

The option of a research project ZITE8199 *Project – Information Technology* (12UOC) is available to Masters students who attain a high credit average or better in four courses and is subject to the approval of the Plan Authority. ZITE8199 *Project – Information Technology* is recommended for those with a strong interest in pursuing original research in a particular area or intending to undertake a higher level research qualification. Students undertaking ZITE8199 *Project – Information Technology* may take a maximum of one course (6UOC) from a related coursework program.

## MSc in Information Technology – Enterprise Architecture

**Plan Overview**

<b>Plan Code</b>	ZITEEA8562
<b>Faculty</b>	UNSW@ADFA
<b>School</b>	School of Information Technology and Electrical Engineering
<b>Award</b>	8562 Master of Science - Information Technology (MScIT)
<b>Career</b>	Postgraduate
<b>Duration</b>	One year full-time or part-time equivalent
<b>Contact</b>	Dr C. Lokan, Postgraduate Coursework Co-ordinator

**Plan Description**

The IT–Enterprise Architecture plan in the Master of Science is designed to provide a comprehensive understanding of enterprise architecture. It is an articulated program of study, in which students may progress through the Graduate Certificate, Graduate Diploma and MSc in Information Technology–Enterprise Architecture.

**Plan Structure**

Students undertaking the MSc in IT–Enterprise Architecture are required to take 48UOC from core and elective courses in accordance with the conditions set out on page 219. Each course is worth 6UOC.

**Core courses:**

Students must complete the five core courses that make up the GradDipScience in IT–Enterprise Architecture.

**Elective courses:**

Students may choose their remaining three courses from the following elective courses:

ZACM8324	<i>Project Administration</i>
ZACM8325	<i>System Dynamics of Project Organisation</i>
ZBUS8103	<i>Human Resource Management</i>
ZBUS8104	<i>Legal Process and Procedure</i>
ZBUS8105	<i>Finance and Investment Appraisal</i>
ZBUS8108	<i>Strategic Management</i>
ZBUS8303	<i>Strategic Procurement</i>
ZITE8104	<i>Computer Security</i>
ZITE8115	<i>Information Operations</i>
ZITE8119	<i>Internetworking</i>

ZITE8126	<i>Languages of the Web</i>
ZITE8129	<i>Multimedia and Virtual Environments</i>
ZITE8134	<i>Software Architecture</i>
ZITE8136	<i>Software Project Management</i>
ZITE8138	<i>Systems Planning</i>
ZITE8139	<i>Telecommunications Design and Management</i>
ZITE8141	<i>WAN Technologies</i>
ZITE8402	<i>Concept Development, Experimentation and Wargaming</i>

Note: ZITE8137 is assumed knowledge for ZITE8104, and ZACM8309 is assumed knowledge for ZACM8324, for students in other postgraduate plans. Those requirements are waived for students in the IT–Enterprise Architecture plan.

Suitable *Special Topics* (ZITE8120, ZITE8121, ZITE8122, ZITE8123) and Directed Studies courses (ZITE8111, ZITE8112) may be available from time to time. They may be chosen as elective courses in this plan, subject to the approval of the Program Authority.

The option of taking up to two courses from related coursework programs is not normally available to students in the MSc in IT–Enterprise Architecture.

The option of a project (ZITE8199, worth 12UOC) is available to students enrolled in the MSc in IT–EA, in place of the two elective courses. Students cannot enrol in the project until they have completed at least four courses, with a high credit average or better. The project is not available to students in the Graduate Diploma.

Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

## MSc in Operations Research and Statistics

**Plan Overview**

<b>Plan Code</b>	AINTKS8562
<b>Faculty</b>	UNSW@ADFA
<b>School</b>	School of Information Technology and Electrical Engineering
<b>Award</b>	8562 Master of Science – Operations Research and Statistics (MScOR&S)
<b>Career</b>	Postgraduate
<b>Duration</b>	One year full-time or part-time equivalent
<b>Contact</b>	Dr C. Lokan, Postgraduate Coursework Co-ordinator

**Plan Description**

The MSc in Operations Research and Statistics is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant science discipline and/or extensive professional experience who wish to develop a high level understanding of the principles and practice of operations research and statistical analysis and to strengthen their skills in analysis, problem solving and decision making. Its consideration of a wide range of analytical and quantitative techniques makes it suitable to both the professional analyst and to the student wishing to develop or employ those skills in higher level research.

## Plan Structure

Students undertaking the MSc in Operations Research and Statistics are required to take eight coursework courses (48UOC) from the courses set out on page 220. The courses are broadly grouped as Operations Research and Statistical Analysis. Masters students may select the combination of courses most appropriate to their individual needs but must include at least two courses from each of the groups.

### Operations Research

ZITE8128	<i>Modern Heuristic Techniques</i>
ZITE8403	<i>Decision Analysis</i>
ZITE8404	<i>Introduction to Defence Operations Research</i>
ZITE8405	<i>Optimisation Techniques</i>
ZITE8410	<i>Soft Systems Methodologies</i>
ZPEM8501	<i>Weapons Assessment</i>

### Statistical Analysis

ZACM8327	<i>Maximum Entropy Analysis</i>
ZITE8406	<i>OR Special Topic</i>
ZPEM8301	<i>Statistical Trials Analysis</i>
ZPEM8308	<i>Reliability and Maintainability</i>
ZPEM8304	<i>Statistical Forecasting</i>
ZPEM8307	<i>Financial Mathematics</i>

### Other OR&S Courses

ZITE8199	<i>Project - Information Technology</i>
ZITE8406/9	<i>OR Special Topic</i>

Students may, with the approval of the Plan Authority, take up to two courses (12UOC) from related coursework programs. Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

### Research Project:

The option of ZITE8199 *Project – Information Technology* (12UOC) is available to Masters students who attain a high credit average or better in four courses and is subject to the approval of the Plan Authority. ZITE8199 *Project – Information Technology* is recommended for those with a strong interest in pursuing original research in a particular area or intending to undertake a higher level research qualification. Students undertaking ZITE8199 *Project – Information Technology* may take a maximum of one course (6UOC) from a related coursework program.

## MSc in Software Development

### Plan Overview

<b>Plan Code</b>	<b>ZITESD8562</b>
<b>Faculte</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Award</b>	<b>8562 Master of Science – Software Development (MScSD)</b>
<b>Career:</b>	<b>Postgraduate</b>
<b>Duration</b>	<b>One and a half years full-time or part-time equivalent</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The MSc in Software Development is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant discipline and/or extensive professional experience who wish to develop a high level understanding of the principles and practices of software development and to strengthen their skills in this area.

### Plan Structure

Students undertaking the MSc in Software Development are required to take 8 coursework courses (48UOC) from the courses set out on page 221. Students must complete one compulsory course and five elective courses from the list below. Not all elective courses will be available in a particular year. Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

#### Compulsory

ZITE8108	<i>Data Structures and Algorithms</i>
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#### Electives

ZITE8101	<i>Advanced Java Programming</i>
ZITE8103	<i>Computer Graphics</i>
ZITE8129	<i>Multimedia and Virtual Environments</i>
ZITE8131	<i>Object Oriented Analysis and Design</i>
ZITE8132	<i>Object Oriented Programming</i>
ZITE8134	<i>Software Architectures</i>
ZITE8140	<i>User Interface Construction</i>
ZITE8143	<i>Distributed Applications</i>
ZITE8145	<i>Soft Computing</i>

Students may, with the approval of the Plan Authority, take up to two courses (12UOC) from other Master of Science plans or other coursework programs.

### Research Project:

The option of a ZITE8199 *Project – Information Technology* is available to Masters students who attain a high credit average or better in four courses and is subject to approval of the Plan Authority. ZITE8199 *Project – Information Technology* is recommended for those with a strong interest in pursuing original research in a particular area or intending to undertake a higher level research qualification. Students undertaking ZITE8199 *Project – Information Technology* are unable to take courses from other coursework programs.

## MSc in Systems Network Administration

### Plan Overview

<b>Plan Code</b>	<b>ZITESN8562</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Award</b>	<b>8562 Master of Science – Systems Network Administration (MScSNA)</b>
<b>Career:</b>	<b>Postgraduate</b>
<b>Duration</b>	<b>One and a half years full-time or part-time equivalent</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The MSc in Systems and Network Administration is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant discipline and/or extensive professional experience who wish to develop a high level understanding of the principles and practices of systems and network administration and to strengthen their skills in this area.

### Plan Structure

Students undertaking the MSc in Systems and Network Administration are required to take 8 coursework courses (48UOC) from the courses set out on page 222. Students must complete three compulsory courses and three elective courses from the list below. Not all elective courses will be available in a particular year. Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

#### Compulsory

ZITE8119	<i>Internetworking</i>
ZITE8133	<i>Operating Systems</i>
ZITE8137	<i>System and Network Administration</i>

#### Electives

ZITE8104	<i>Computer Security</i>
ZITE8106	<i>Cryptography</i>
ZITE8126	<i>Languages of the Web</i>
ZITE8130	<i>Network Management and Troubleshooting</i>
ZITE8139	<i>Telecommunications Design and Management</i>
ZITE8141	<i>WAN Technologies</i>
ZITE8143	<i>Distributed Applications</i>
ZITE8219	<i>Satellite Communications</i>

Students may, with the approval of the Plan Authority, take up to two courses (12UOC) from other Master of Science plans or other coursework programs.

### Research Project:

The option of a ZITE8199 *Project – Information Technology* is available to Masters students who attain a high credit average or better in four courses and is subject to approval of the Plan Authority. ZITE8199 *Project – Information Technology* is recommended for those with a strong interest in pursuing original research in a particular area or intending to undertake a higher level research qualification. Students undertaking ZITE8199 *Project – Information Technology* are unable to take courses from other coursework programs.

## MSc in Web Technologies

### Plan Overview

<b>Plan Code</b>	<b>ZITEWT8562</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Award</b>	<b>8562 Master of Science – Web Technologies (MScWT)</b>
<b>Career:</b>	<b>Postgraduate</b>
<b>Duration</b>	<b>One and a half years full-time or part-time equivalent</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The MSc in Web Technologies is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant discipline and/or extensive professional experience who wish to develop a high level understanding of the principles and practices of web technologies and to strengthen their skills in this area.

### Plan Structure

Students undertaking the MSc in Web Technologies are required to take 8 coursework courses (48UOC) from the courses set out on page 222. Students must complete six elective courses from the list below. Not all elective courses will be available in a particular year. Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

#### Electives

ZITE8101	<i>Advanced Java Programming</i>
ZITE8114	<i>Electronic Business</i>
ZITE8117	<i>Integrating Information Systems Technologies</i>
ZITE8126	<i>Languages of the Web</i>
ZITE8129	<i>Multimedia and Virtual Environments</i>
ZITE8140	<i>User Interface Construction</i>
ZITE8142	<i>Web Design</i>
ZITE8143	<i>Distributed Applications</i>
ZITE8145	<i>Soft Computing</i>

Students may, with the approval of the Plan Authority, take up to two courses (12UOC) from other Master of Science plans or other coursework programs.

**Research Project:**

The option of a ZITE8199 *Project – Information Technology* is available to Masters students who attain a high credit average or better in four courses and is subject to approval of the Plan Authority. ZITE8199 *Project – Information Technology* is recommended for those with a strong interest in pursuing original research in a particular area or intending to undertake a higher level research qualification. Students undertaking ZITE8199 *Project – Information Technology* are unable to take courses from other coursework programs.

**PROGRAM INFORMATION****Graduate Diploma in Science – 5882****Program Summary:**

**Faculty:** UNSW@ADFA

**School:** School of Information Technology and Electrical Engineering

**Campus:** ADFA

**Award:** 5882 Graduate Diploma in Science (GradDipSc)

**Career:** Postgraduate

**Duration:** One year full-time or part-time equivalent

**UOC per session:** 18UOC (full-time)

**UOC for award:** 36UOC

**Program Description:**

The Graduate Diploma of Science enables students to specialise in the following plans of C4ISREW, Defence Operations Research, ICT Management, Information Technology, Information Technology – Enterprise Architecture (IT – Enterprise Architecture), Operations Research and Statistics, Software Development, Systems Network Administration, Web Technologies

**Program Objectives and Learning Outcomes:**

The Graduate Diploma of Science is designed for postgraduate scholars with undergraduate qualifications in a relevant discipline and/or appropriate professional experience.

**Program Structure:**

Six courses chosen in accord with the rules for the relevant plan, with the exception of the Defence Operations Research plan where eight courses are required.

**Academic Rules:**

*The rules for the degree of Graduate Diploma in Arts, Graduate Diploma in Defence Studies, Graduate Diploma in Engineering Science, Graduate Diploma in Management Studies or Graduate Diploma in Science are identical. Please refer to rules set out under Graduate Diploma in Arts on page 181.*

**PLAN INFORMATION****Plans available in the Graduate Diploma of Science Program****GradDipScience in C4ISREW****Plan Overview**

**Plan Code** ZITECC5882

**Faculty** UNSW@ADFA

**School** School of Information Technology and Electrical Engineering

**Contact** Dr C. Lokan,  
Postgraduate Coursework Co-ordinator

**Plan Description**

The GradDipScience in C4ISREW is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant discipline and/or appropriate professional experience who wish to develop an enhanced understanding of the principles and practices of C4ISREW and to strengthen their skills in this area. The diploma provides advanced professional qualifications and the foundations for students wishing to proceed to higher levels of study in the discipline.

**Plan Structure**

Students undertaking the GradDipScience in C4ISREW are required to take 6 coursework courses (36UOC) from the courses set out on page 217. Students must complete two compulsory course and three elective courses from the list below. Not all elective courses will be available in a particular year. Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

**Compulsory**

ZITE8102 *C3I Systems*  
ZITE8115 *Information Operations*

**Electives**

ZITE8104 *Computer Security*  
ZITE8106 *Cryptography*  
ZITE8110 *Decision Support Systems*  
ZITE8119 *Internetworking*  
ZITE8129 *Multimedia and Virtual Environments*  
ZITE8145 *Soft Computing*  
ZITE8208 *Digital Video Communications*  
ZITE8219 *Satellite Communications*  
ZITE8221 *Spaceborne Imaging Technology*  
ZITE8227 *Digital Image Processing and Enhancement*  
ZITE8403 *Decision Analysis*

Students may, with the approval of the Plan Authority, take up to one course (6UOC) from other Master of Science plans or other coursework programs. The ZITE8199 *Project – Information Technology* is not available to candidates for the Graduate Diploma.

## GradDipScience in Defence Operations Research

### Plan Overview

Plan Code	AINTDS5882
Faculty	UNSW@ADFA
School	School of Information Technology and Electrical Engineering
Contact	Dr C. Lokan, Postgraduate Coursework Co-ordinator

### Plan Description

**The GradDipScience in Defence Operations Research is only available to participants in DSTO's Continuing Education Initiative.** It is designed for postgraduate scholars with undergraduate qualifications in a relevant science discipline and/or extensive professional experience, to provide a comprehensive understanding of decision making, analysis and operations research techniques relevant to researchers in the Defence sector.

### Plan Structure

The following core and elective courses are available to students in the GradDipScience in Defence Operations Research:

#### Compulsory courses

EEET5107	<i>Systems Engineering for Complex Problem Solving (University of South Australia)</i>
EEET5108	<i>Research Methods in a Multidisciplinary Environment (University of South Australia)</i>
ZITE8403	<i>Decision Analysis</i>
ZITE8404	<i>Introduction to Defence Operations Research</i>

#### Core courses

ZITE7402	<i>Introduction to Simulation</i>
ZITE8401	<i>Analysis of Military Systems</i>
ZITE8402	<i>Concept Development, Experimentation and Wargaming</i>
ZITE8405	<i>Optimisation Techniques</i>
ZITE8411	<i>Warfare Modelling and Analysis</i>

#### Elective courses

AERO2311	<i>Risk and Technology Decisions (RMIT University)</i>
EEET5048	<i>Contemporary Systems Thinking (University of South Australia)</i>
DEFSCI7001	<i>Decision-making in Real Environments (University of Adelaide)</i>
DEFSCI7003	<i>Artificial Intelligence (University of Adelaide)</i>
DEFSCI7013	<i>Knowledge Representation (University of Adelaide)</i>
ZPEM7301	<i>Introduction to Data Analysis</i>
ZPEM8301	<i>Statistical Trials Analysis</i>

Students undertaking the GradDipScience in Defence Operations Research are required to complete eight courses (48UOC) from the above lists as follows:

- All four courses from the above list of compulsory courses
- Two courses from the above list of core courses
- Two courses from the above lists of core and elective courses.

Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

## GradDipScience in ICT Management

### Plan Overview

Plan Code	ZITEIC5882
Faculty	UNSW@ADFA
School	School of Information Technology and Electrical Engineering
Contact	Dr C. Lokan, Postgraduate Coursework Co-ordinator

### Plan Description

The GradDipScience in ICT Management is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant discipline and/or appropriate professional experience who wish to develop an enhanced understanding of the principles and practices of ICT management and to strengthen their skills in this area. The diploma provides advanced professional qualifications and the foundations for students wishing to proceed to higher levels of study in the discipline.

### Plan Structure

Students undertaking the GradDipScience in ICT Management are required to take 6 coursework courses (36UOC) from the courses set out on page 218. Students must complete four compulsory courses and one elective course from the list below. Not all elective courses will be available in a particular year. Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

#### Compulsory

ZITE8116	<i>Information Systems Policy and Strategy</i>
ZITE8136	<i>Software Project Management</i>
ZITE8138	<i>Systems Planning</i>
ZITE8144	<i>Information and Communication Technology Processes</i>

#### Electives

ZITE8104	<i>Computer Security</i>
ZITE8110	<i>Decision Support Systems</i>
ZITE8114	<i>Electronic Business</i>
ZITE8117	<i>Integrating Information Systems Technologies</i>
ZITE8118	<i>Integrating the Enterprise and IS Functions</i>
ZITE8226	<i>Systems Engineering Practice</i>

Students may, with the approval of the Plan Authority, take up to one course (6UOC) from other Master of Science plans or other coursework programs. The ZITE8199 *Project – Information Technology* is not available to candidates for the Graduate Diploma.



## GradDipScience in Information Technology

### Plan Overview

<b>Plan Code</b>	<b>ACSCDS7397</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The GradDipScience in Information Technology is designed for postgraduate scholars with undergraduate qualifications in a relevant discipline and/or appropriate professional experience who wish to develop an enhanced understanding of the principles that shape information technology and their implementation through the design, development and application phases. The diploma provides advanced professional qualifications and the foundations for students wishing to proceed to higher levels of study in the discipline.

### Plan Structure

Students undertaking the GradDipScience in Information Technology are required to take six coursework courses (36UOC) from the courses outlined above for MSc in Information Technology. They may select the combination of courses most appropriate to their individual needs.

They may, with the approval of the Plan Authority, take one course (6UOC) from a related coursework program. ZITE8199 *Project – Information Technology* is not available to candidates for the Graduate Diploma.

Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

## GradDipScience in Information Technology – Enterprise Architecture

### Plan Overview

<b>Plan Code</b>	<b>ZITEEA7382</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The IT–Enterprise Architecture plan in the Graduate Diploma of Science is designed to provide a comprehensive understanding of enterprise architecture. It is an articulated program of study, in which students may progress through the Graduate Certificate, Graduate Diploma and MSc in Information Technology–Enterprise Architecture.

### Plan Structure

Students undertaking the GradDipScience in IT–Enterprise Architecture are required to take courses worth 36UOC. There are five specified courses and one elective course. Each course is worth 6UOC.

### Core Courses:

Students must complete the following courses:

ZITE8102	<i>C3I Systems</i>
ZITE8116	<i>Information Systems Policy and Strategy</i>
ZITE8117	<i>Integrating Information Systems Technologies</i>
ZITE8118	<i>Integrating the Enterprise and Information Systems Functions</i>
ZITE8226	<i>Systems Engineering Practice</i>

The list of elective courses is given under the MSc in Information Technology – Enterprise Architecture on page 219.

Note: ZITE8138 *Systems Planning* is assumed knowledge for ZITE8116 and ZITE8118 for students in other postgraduate plans.

That requirement is waived for students in the IT–Enterprise Architecture plan.

The option of taking one course from a related coursework program is not normally available to students in the GradDipScience in IT–Enterprise Architecture.

Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

## GradDipScience in Operations Research and Statistics

### Plan Overview

<b>Plan Code</b>	<b>AINTKS7395</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The GradDipScience in Operations Research and Statistics is designed for postgraduate scholars with undergraduate qualifications in a relevant discipline and/or appropriate professional experience who wish to develop an enhanced understanding of the principles and practice of operations research and statistical analysis and to develop their skills in analysis, problem solving and decision making. The diploma provides an advanced qualification for professional analysts, modellers and statisticians and the foundations for students wishing to proceed to higher levels of study in the discipline.

### Plan Structure

Students undertaking the GradDipScience in Operations Research and Statistics are required to take 6 coursework courses (36UOC) from the courses outlined above for MSc in Operations Research and Statistics. Diploma students may select the combination of courses most appropriate to their individual needs but must include at least one course from each of the Operations Research and Statistical Analysis groups.

Students may, with the approval of the Plan Authority, take one course (6UOC) from a related coursework program. ZITE8199 *Project – Information Technology* is not available to candidates for the Graduate Diploma.

Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

## GradDipScience in Software Development

### Plan Overview

<b>Plan Code</b>	<b>ZITESD5882</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The GradDipScience in Software Development is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant discipline and/or appropriate professional experience who wish to develop an enhanced understanding of the principles and practices of software development and to strengthen their skills in this area. The diploma provides advanced professional qualifications and the foundations for students wishing to proceed to higher levels of study in the discipline.

### Plan Structure

Students undertaking the GradDipScience in Software Development are required to take 6 coursework courses (36UOC) from the courses set out on page 221. Students must complete one compulsory course and four elective courses from the list below. Not all elective courses will be available in a particular year. Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

#### Compulsory

ZITE8108	<i>Data Structures and Algorithms</i>
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#### Electives

ZITE8101	<i>Advanced Java Programming</i>
ZITE8103	<i>Computer Graphics</i>
ZITE8129	<i>Multimedia and Virtual Environments</i>
ZITE8131	<i>Object Oriented Analysis and Design</i>
ZITE8132	<i>Object Oriented Programming</i>
ZITE8134	<i>Software Architectures</i>
ZITE8140	<i>User Interface Construction</i>
ZITE8143	<i>Distributed Applications</i>
ZITE8145	<i>Soft Computing</i>

Students may, with the approval of the Plan Authority, take up to one course (6UOC) from other Master of Science plans or other coursework programs. The ZITE8199 *Project – Information Technology* is not available to candidates for the Graduate Diploma.

## GradDipScience in Systems Network Administration

### Plan Overview

<b>Plan Code</b>	<b>ZITESN5882</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The GradDipScience in Systems and Network Administration is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant discipline and/or appropriate professional experience who wish to develop an enhanced understanding of the principles and practices of systems and network administration and to strengthen their skills in this area. The diploma provides advanced professional qualifications and the foundations for students wishing to proceed to higher levels of study in the discipline.

### Plan Structure

Students undertaking the GradDipScience in Systems and Network Administration are required to take 6 coursework courses (36UOC) from the courses set out on page 222. Students must complete three compulsory courses and two elective courses from the list below. Not all elective courses will be available in a particular year. Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

#### Compulsory

ZITE8119	<i>Internetworking</i>
ZITE8133	<i>Operating Systems</i>
ZITE8137	<i>System and Network Administration</i>

#### Electives

ZITE8104	<i>Computer Security</i>
ZITE8106	<i>Cryptography</i>
ZITE8126	<i>Languages of the Web</i>
ZITE8130	<i>Network Management and Troubleshooting</i>
ZITE8139	<i>Telecommunications Design and Management</i>
ZITE8141	<i>WAN Technologies</i>
ZITE8143	<i>Distributed Applications</i>
ZITE8219	<i>Satellite Communications</i>

Students may, with the approval of the Plan Authority, take up to one course (6UOC) from other Master of Science plans or other coursework programs. The ZITE8199 *Project – Information Technology* is not available to candidates for the Graduate Diploma.

## GradDipScience in Web Technologies

### Plan Overview

<b>Plan Code</b>	<b>ZITEWT5882</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The GradDipScience in Web Technologies is designed for postgraduate scholars with appropriate undergraduate qualifications in a relevant discipline and/or appropriate professional experience who wish to develop an enhanced understanding of the principles and practices of web technologies and to strengthen their skills in this area. The diploma provides advanced professional qualifications and the foundations for students wishing to proceed to higher levels of study in the discipline.

### Plan Structure

Students undertaking the GradDipScience in Web Technologies are required to take 6 coursework courses (36UOC) from the courses set out on page 222. Students must complete five elective courses from the list below. Not all elective courses will be available in a particular year. Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

#### Electives

ZITE8101	<i>Advanced Java Programming</i>
ZITE8114	<i>Electronic Business</i>
ZITE8117	<i>Integrating Information Systems Technologies</i>
ZITE8126	<i>Languages of the Web</i>
ZITE8129	<i>Multimedia and Virtual Environments</i>
ZITE8140	<i>User Interface Construction</i>
ZITE8142	<i>Web Design</i>
ZITE8143	<i>Distributed Applications</i>
ZITE8145	<i>Soft Computing</i>

Students may, with the approval of the Plan Authority, take up to one course (6UOC) from other Master of Science plans or other coursework programs. The ZITE8199 *Project – Information Technology* is not available to candidates for the Graduate Diploma.

## PROGRAM INFORMATION

### Graduate Certificate in Science – 7382

#### Program Summary:

<b>Faculty:</b>	UNSW@ADFA
<b>School:</b>	School of Information Technology and Electrical Engineering
<b>Campus:</b>	ADFA
<b>Award:</b>	7382 Graduate Certificate in Science (GradCertSc)
<b>Career:</b>	Postgraduate
<b>Duration:</b>	One session full-time or part-time equivalent
<b>UOC per session:</b>	24UOC (full-time)
<b>UOC for award:</b>	24UOC

#### Program Description:

The Graduate Certificate in Science enables students to specialise in the following plans of Defence Operations Research, Information Technology, Information Technology – Enterprise Architecture, and Operations Research and Statistics.

#### Program Objectives and Learning Outcomes:

The Graduate Certificate in Science is designed for postgraduate scholars with an undergraduate degree or established profession in another field who wish to gain an understanding of the principles of science.

#### Program Structure:

Four courses chosen in accord with the rules for the relevant plan.

#### Academic Rules:

*The rules for the degree of Graduate Certificate in Arts, Graduate Certificate in Defence Studies, Graduate Certificate in Engineering Science, Graduate Certificate in Management Studies and Graduate Certificate in Science are identical. Please refer to rules set out under Graduate Certificate in Defence Studies on page 185.*

## PLAN INFORMATION

### Plans available in the Graduate Certificate of Science Program

#### GradCertScience in Defence Operations Research

##### Plan Overview

Plan Code	AINTDS7382
Faculty	UNSW@ADFA
School	School of Information Technology and Electrical Engineering
Contact	Dr C. Lokan, Postgraduate Coursework Co-ordinator

##### Plan Description

*The GradCertScience in Defence Operations Research is only available to participants in DSTO's Continuing Education Initiative.* It is designed for students with an undergraduate degree or established profession in another field who wish to gain an understanding of decision making, analysis and operations research techniques relevant to researchers in the Defence sector.

The GradCertScience in Defence Operations Research forms the first step in an articulated sequence of study to Graduate Diploma and Masters qualifications in the discipline.

##### Plan Structure

The following core and elective courses are available to students in the GradCertScience in Defence Operations Research:

##### Compulsory courses

EEET5107	<i>Systems Engineering for Complex Problem Solving (University of South Australia)</i>
ZITE8404	<i>Introduction to Defence Operations Research</i>

##### Core courses

ZITE7402	<i>Introduction to Simulation</i>
ZITE8401	<i>Analysis of Military Systems</i>
ZITE8402	<i>Concept Development, Experimentation and Wargaming</i>
ZITE8403	<i>Decision Analysis</i>
ZITE8405	<i>Optimisation Techniques</i>
ZITE8411	<i>Warfare Modelling and Analysis</i>

##### Elective courses

AERO2311	<i>Risk and Technology Decisions (RMIT University)</i>
DEFSCI7001	<i>Decision-making in Real Environments (University of Adelaide)</i>
DEFSCI7003	<i>Artificial Intelligence (University of Adelaide)</i>
DEFSCI7013	<i>Knowledge Representation (University of Adelaide)</i>
EEET5048	<i>Contemporary Systems Thinking (University of South Australia)</i>
ZPEM7301	<i>Introduction to Data Analysis</i>
ZPEM8301	<i>Statistical Trials Analysis</i>

Students undertaking the GradCertScience in Defence Operations Research are required to complete four courses (24UOC) from the above lists as follows:

- Both courses from the above list of compulsory courses
- One course from the above list of core courses
- One course from the above lists of core and elective courses.

Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

#### GradCertScience in Information Technology

##### Plan Overview

Plan Code	ACSCDS5865
Faculty	UNSW@ADFA
School	School of Information Technology and Electrical Engineering
Contact	Dr C. Lokan, Postgraduate Coursework Co-ordinator

##### Plan Description

The GradCertScience in Information Technology is designed for postgraduate scholars with an undergraduate degree or established profession in another field who wish to gain an understanding of the principles of information technology. The certificate assists professionals to understand and be able to employ information technology in their own environment.

The GradCertScience in Information Technology forms the first step in an articulated sequence of study to Graduate Diploma and Masters qualifications and potentially to the Doctorate of Information Technology. The certificate also allows students with the relevant academic or professional background to acquire a qualification for advanced study in a more specialised aspect of the program without the need to complete all the requirements of a Graduate Diploma or Masters degree.

##### Plan Structure

Students entering the Information Technology stream at the Graduate Certificate level are required to complete four foundation courses (24UOC) from those set out below. Course choices are important for students seeking the foundations to proceed to higher level qualifications in the discipline and must be approved by the Plan Authority.

The available foundation courses are:

ZITE7101	<i>Introduction to Data Networks</i>
ZITE7102	<i>Introduction to Database Systems</i>
ZITE7103	<i>Introduction to Programming</i>
ZITE7104	<i>Introduction to Telecommunications</i>
ZITE7105	<i>Introduction to the Web</i>
ZITE7106	<i>Systems Analysis and Design</i>

Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

## GradCertScience in Information Technology – Enterprise Architecture

### Plan Overview

<b>Plan Code</b>	<b>ZITEEA5882</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The IT–Enterprise Architecture plan in the Master of Science is designed to provide a comprehensive understanding of enterprise architecture. It is an articulated program of study, in which students may progress through the Graduate Certificate, Graduate Diploma and MSc in Information Technology–Enterprise Architecture.

### Plan Structure

Students undertaking the GradCertScience in IT–Enterprise Architecture are required to take 24UOC from core and elective courses in accordance with the conditions set out on page 219. Each course is worth 6UOC.

#### Core Courses:

Students must complete the following courses:

ZITE7102	<i>Introduction to Database Systems</i>
ZITE7104	<i>Introduction to Telecommunications</i>
ZITE8402	<i>Concept Development, Experimentation and Wargaming</i>

#### Elective courses:

Students may choose their remaining course from the following elective courses:

ZITE7101	<i>Introduction to Data Networks</i>
ZITE7102	<i>Introduction to Database Systems</i>
ZITE7105	<i>Introduction to the Web</i>
ZITE7106	<i>Systems Analysis and Design</i>
ZITE7203	<i>Communications and Information Systems</i>
ZITE7205	<i>Fundamentals of Surveillance Technologies</i>

Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

## GradCertScience in Operations Research and Statistics

### Plan Overview

<b>Plan Code</b>	<b>AINTKS5882</b>
<b>Faculty</b>	<b>UNSW@ADFA</b>
<b>School</b>	<b>School of Information Technology and Electrical Engineering</b>
<b>Contact</b>	<b>Dr C. Lokan, Postgraduate Coursework Co-ordinator</b>

### Plan Description

The GradCertScience in Operations Research and Statistics is designed for students with an undergraduate degree or established profession in another field who wish to gain an understanding of the principles and practice of operations research and statistical analysis and to develop skills in analysis, problem solving and decision making. The certificate assists professionals to understand and be able to employ operations research and statistical analysis skills in their own environment.

The GradCertScience in Operations Research and Statistics forms the first step in an articulated sequence of study to Graduate Diploma and Masters qualifications in the discipline. The certificate also allows students with the relevant academic or professional background to acquire a qualification for advanced study in a more specialised aspect of the program without the need to complete all the requirements of a Graduate Diploma or Masters degree.

### Plan Structure

Students entering the Operations Research and Statistics stream at the Graduate Certificate level are required to complete the following four foundation courses (24UOC):

ZITE7103	<i>Introduction to Programming</i>
ZITE7401	<i>Introduction to Management Science</i>
ZITE7402	<i>Introduction to Simulation</i>
ZPEM7301	<i>Introduction to Data Analysis</i>

Full details of Science courses available in 2006 may be found in the Course Catalogue on page 237.

## Schedule of courses available in the specialised plans within the Arts Programs

### English and Cultural Studies Plan

#### GradDip/Masters Courses

No.	Course Title	On Campus	Distance Mode
ZHSS8103	Exotic Neighbours: Asia-Pacific Literature and Culture	S2	
ZHSS8109	Australian Literary Culture	S2	
ZHSS8115	Literary Theory and the History of Communication	S1	
ZHSS8119	Academic Discourse I: Analysis and Writing (for International Students)	S1 S2	
ZHSS8122	Research Project English (12UOC)	S1, S2	S1, S2

## Schedule of courses available in the Defence Studies Programs

### Keystone Courses

No.	Course Title	On Campus	Distance Mode
ZHSS8420	Defending Australia: Developing Security Policy in a Changing World	S1	S1
ZHSS8422	Asia-Pacific Security: Regional Security in the New Millennium	S1	S1
ZHSS8424	Foundations of Strategy and Military Affairs	S2	S2

#### GradDip/Masters Courses

No.	Course Title	On Campus	Distance Mode
ZHSS7305	The History of Australian Defence and Foreign Policy (Grad Cert Students Only)	S2	S2
ZHSS8103	Exotic Neighbours: Asia-Pacific Literature and Culture	S1	
ZHSS8115	Literary Theory and the History of Communication	S2	
ZHSS8119	Academic Discourse I: Analysis and Writing (for International Students)	S1, S2	
ZHSS8202	The History of Australian Defence and Foreign Policy	S2	S2
ZHSS8203	History of Pre-Nuclear Military Thought	S1	
ZHSS8204	Modern Naval History and Strategy	S2	S2
ZHSS8207	Case Studies in War	S1	
ZHSS8212	Research Project History (12UOC)	S1, S2	S1, S2
ZHSS8400	Research Project Politics (12UOC)	S1, S2	S1, S2
ZHSS8403	Global Security	S1	S1
ZHSS8405	Security Issues in Northeast Asia	S1	S1
ZHSS8411	Developing Strategic Policy in the 21st Century	S2	
ZHSS8413	Southeast Asia: Issues in Security Cooperation	S2	S2
ZHSS8415	Terrorism and Transnational Crime	S1	S1
ZHSS8416	Seeking the Information Edge: The Role of Modern Intelligence	S2	S2
ZHSS8419	Australian Homeland Security	S1	S1
ZHSS8421	Defending Australia – Special Studies	S2	S2
ZHSS8423	Asia-Pacific Security – Special Studies	S2	S2
ZPEM8204	Strategic Geographical Issues In Australia's Neighbourhood	S2	
ZPEM8202	Principles of Geographic Information Analysis & Remote Sensing	S1	

## Schedule of courses available in the specialised plans within the Engineering Science Programs

### Aerospace Engineering Plan

#### GradDip/Masters Courses - Intensive Delivery Mode\*

No.	Course Title	On Campus Mode	Distance
ZACM8305	Civil and Military Airworthiness	S2 Intensive	
ZACM8324	Project Administration	S2	S2
ZACM8327	Maximum Entropy Analysis	S1	
ZBUS8105	Finance and Investment Appraisal	S1 Intensive	
ZITE8226	Systems Engineering Practice	S1 Intensive (RAAF Retention Scheme)	
ZPEM8308	Reliability and Maintainability	S2 Intensive	

\*Only ADF nominated officers can enrol in these IDM courses.

Courses not available in 2006 but possibly available in future years are listed below.

No.	Course Title	
ZACM8304	Aircraft Structural Repair Methodologies	Not Offered in 2006
ZITE8215	Principles of Modern Communications and Information Systems	Not Offered in 2006

#### GradDip/Masters Courses - Courses in Normal Session Mode

No.	Course Title	On Campus	Distance Mode
ZACM8324	Project Administration	S2	S2
ZACM8306	Professional Practice – Aerospace Engineering	S1, S2	
ZACM8502	Project Report - Aerospace Engineering (12UOC)	S1, S2	
ZBUS8302	Logistics	S1	
ZITE8219	Satellite Communications	S1	S1
ZITE8226	Systems Engineering Practice	S2	S2

### Civil Engineering and Project Management Plan

#### GradDip/Masters Courses

No.	Course Title	On Campus	Distance Mode
ZACM8308	Facility and Property Management	S1	S1
ZACM8309	Project Management Body of Knowledge	S1	S1
ZACM8310	Project Systems Modelling		S2
ZACM8315	Special Elective 1: Project Management	S1, S2	S1, S2
ZACM8324	Project Administration	S2	S2
ZACM8325	System Dynamics of Project Organisation	S1	S1
ZACM8327	Maximum Entropy Analysis	S1	
ZACM8502	Project Report Civil Engineering (12UOC)	S1, S2	
ZBUS8101	Strategic Management	S1, S2	S1
ZBUS8105	Finance and Investment Appraisal	S2	S2
ZITE8138	Systems Planning	S2	S2
ZITE8136	Software Project Management	S2	S2

**C4ISREW Plan****Compulsory Courses**

No.	Course Title	On Campus	Distance Mode
ZITE8102	C3I Systems	S1 (IDM) Intensive Feb	
ZITE8115	Information Operations	S1	S1

**Elective Courses**

No.	Course Title	On Campus	Distance Mode
ZITE8104	Computer Security	S1	S1
ZITE8106	Cryptography	S2	S2
ZITE8110	Decision Support Systems	S1	
ZITE8119	Internetworking	S1	
ZITE8204	Airborne Radar	S2	
ZITE8206	Digital Communications	S2	
ZITE8219	Satellite Communications	S1	S1
ZITE8221	Spaceborne Imaging Technology	S1	
ZITE8227	Digital Image Processing and Enhancement	S1	
ZITE8228	Modern Signal Estimation and Filtering Techniques	S2	
ZITE8403	Decision Analysis	S1	S1

Courses not available in 2006 but possibly available in future years are listed below.

No.	Course Title	On Campus	Distance Mode
ZITE8208	Digital Video Communications	Not offered in 2006	
ZITE8213	Mobile Communications	Not offered in 2006	
ZITE8129	Multimedia and Virtual Environments	Not offered in 2006	
ZITE8203	Advanced Digital Signal Processing Techniques	Not offered in 2006	

**Data Communications and Analysis Plan****Elective Courses**

No.	Course Title	On Campus	Distance Mode
ZITE8104	Computer Security	S1	S1
ZITE8106	Cryptography	S2	S2
ZITE8119	Internetworking	S1	
ZITE8141	WAN Technologies	S2	
ZITE8206	Digital Communications	S2	
ZITE8219	Satellite Communications	S1	S1
ZITE8221	Spaceborne Imaging Technology	S1	
ZITE8227	Digital Image Processing and Enhancement	S1	
ZITE8228	Modern Signal Estimation and Filtering Techniques	S2	
ZITE8299	Project Report – Electrical Engineering	S1, S2	

Courses not available in 2006 but possibly available in future years are listed below.

No.	Course Title	On Campus	Distance Mode
ZITE8203	Advanced Digital Signal Processing Techniques	Not offered in 2006	
ZITE8208	Digital Video Communications	Not offered in 2006	
ZITE8213	Mobile Communications	Not offered in 2006	
ZITE8214	Neural Networks	Not offered in 2006	



**Electrical Engineering Plan****Foundation Courses**

No.	Course Title	On Campus	Distance Mode
ZITE7103	Introduction to Programming	S1	S1
ZITE7201	Analogue Communications	S1	
ZITE7202	Communication Systems	S1	
ZITE7203	Communications and Information Systems	S1	
ZITE7204	Digital Signal Processing	S1	
ZITE7205	Fundamentals of Surveillance Technologies	S2	
ZITE7206	Introduction to Optoelectronic Systems	S2	
ZITE7207	Occasional Elective 1	S1	
ZITE7208	Occasional Elective 2	S2	
ZITE7209	Television and Image Transmission Systems	S1	

**GradDip/Masters Courses**

No.	Course Title	On Campus	Distance Mode
ZITE8103	Computer Graphics	S1	
ZITE8104	Computer Security	S1	S1
ZITE8105	Computer Speech Processing	S2	
ZITE8106	Cryptography	S2	S2
ZITE8110	Decision Support Systems	S1	
ZITE8119	Internetworking	S1	
ZITE8132	Object Oriented Programming	S1	S1
ZITE8143	Distributed Applications	S2	
ZITE8204	Airborne Radar	S2	
ZITE8206	Digital Communications	S2	
ZITE8216	Principles of Software Engineering	S2 RAAF Retention Scheme Only	
ZITE8219	Satellite Communications	S1	S1
ZITE8221	Spaceborne Imaging Technology	S1	
ZITE8222	Special Elective 1	S1	
ZITE8223	Special Elective 2	S1	
ZITE8224	Special Elective 3	S2	
ZITE8225	Special Elective 4	S2	
ZITE8226	Systems Engineering Practice	S2	S2
ZITE8227	Digital Image Processing and Enhancement	S1	
ZITE8228	Modern Signal Estimation and Filtering Techniques	S2	
ZITE8299	Project Report Electrical Engineering (12UOC)	S1, S2	

Other courses not available in 2006 but possibly available in future years are listed below.

No.	Course Title	
ZITE8142	Web Design	Not offered in 2006
ZITE8201	Adaptive Antenna Arrays	Not offered in 2006
ZITE8202	Advanced Data Networks	Not offered in 2006
ZITE8203	Advanced Digital Signal Processing Techniques	Not offered in 2006
ZITE8205	Antennas	Not offered in 2006
ZITE8208	Digital Video Communications	Not offered in 2006
ZITE8209	Electrical Engineering Elective	Not offered in 2006
ZITE8213	Mobile Communications	Not offered in 2006
ZITE8214	Neural Networks	Not offered in 2006
ZITE8215	Principles of Modern Communications and Information Systems	Not offered in 2006
ZITE8217	Principles of Surveillance Technologies	Not offered in 2006
ZITE8218	Robotics	Not offered in 2006
ZITE8220	Software Engineering	Not offered in 2006

## Schedule of courses available in the specialised plans within the Management Studies Programs

### Foundation Courses

No.	Course Title	On Campus	Distance Mode
ZBUS7101	Introduction to Management	S1	
ZBUS7102	Introduction to Project Management	S2	S2
ZBUS7103	Economics for Managers	S1	S1
ZITE7401	Introduction to Management Science	S2	S2
ZPEM7301	Introduction to Data Analysis	S2	S2

### Grad Dip/Masters Courses

No.	Course Title	On Campus	Distance Mode
ZACM8501	Project Report (12UOC)	S1, S2	
ZACM8308	Facility and Property Management	S1	S1
ZACM8309	Project Management Body of Knowledge	S1	S1
ZACM8310	Project Systems Modelling		S2
ZACM8324	Project Administration	S2	S2
ZACM8325	System Dynamics of Project Organisation	S1	S1
ZBUS8101	Strategic Management	S1, S2	S1
ZBUS8102	Organisational Behaviour	S1	
ZBUS8103	Human Resource Management	S1	
ZBUS8104	Legal Process and Procedure	S2	
ZBUS8105	Finance and Investment Appraisal	S2, S1 (IDM)	S2
ZBUS8201	Leadership in Organisations	S1	S1
ZBUS8202	Public Sector Human Resource Management	S2	S2
ZBUS8203	Organisation Development and Change	S2	
ZBUS8301	Technology and Innovation	S1	
ZBUS8302	Logistics	S1	
ZBUS8303	Strategic Procurement	Not offered in 2006	

ZBUS8304	Case Studies in Technology Management	S2	
ZBUS8401	Team Project: Technology Management	S2	
ZBUS8501	Research Project - Management Studies (12UOC)	S1, S2	
ZINT8326	Defence Capability and Project Management	S1	
ZITE7203	Communications & Information Systems	S1	
ZITE7205	Fundamentals of Surveillance Technologies	S2	
ZITE8115	Information Operations	S1	S1
ZITE8136	Software Project Management	S2	S2
ZITE8226	Systems Engineering Practice	S2	S2
ZITE8404	Introduction to Defence Operations Research		S2

## Schedule of courses available in the specialised plans within the Science Programs

### C4ISREW Plan

No.	Course Title	On Campus	Distance Mode
<b>Compulsory</b>			
ZITE8102	C3I Systems	S1 (IDM) Intensive Feb 2006	
ZITE8115	Information Operations	S1	S1
<b>Electives</b>			
ZITE8104	Computer Security	S1	S1
ZITE8106	Cryptography	S2	S2
ZITE8110	Decision Support Systems	S1	
ZITE8119	Internetworking	S1	
ZITE8145	Soft Computing	S2	
ZITE8199	Project – Information Technology	S1, S2	S1, S2
ZITE8219	Satellite Communications	S1	S1
ZITE8221	Spaceborne Imaging Technology	S1	
ZITE8227	Digital Image Processing and Enhancement	S1	
ZITE8403	Decision Analysis	S1	S1

Other courses not available in 2006 but available in future years are listed below.

No.	Course Title	
ZITE8129	Multimedia and Virtual Environments	Not offered in 2006
ZITE8208	Digital Video Communications	Not offered in 2006

### Defence Operations Research Plan

No.	Course Title	On Campus	Distance Mode
ZITE7402	Introduction to Simulation	S1	S1
ZITE8402	Concept Development, Experimentation and Wargaming	S2	S2
ZITE8403	Decision Analysis	S1	S1
ZITE8404	Introduction to Defence Operations Research		S2
ZITE8411	Warfare Modelling and Analysis	S1	S1
ZITE8498	Defence Operations Research Project Full Time	S1, S2	S1, S2
ZITE8499	Defence Operations Research Project Part Time	S1, S2	S1, S2
ZPEM7301	Introduction to Data Analysis	S2	S2

Other courses not available in 2006 but available in future years are listed below.

No.	Course Title	On Campus	Distance Mode
ZITE8401	Analysis of Military Systems	Not offered in 2006	
ZITE8405	Optimisation Techniques	Not offered in 2006	

The proposed schedule for offering the courses over the next four years is as follows:

Course		2005		2006		2007		2008	
		S1	S2	S1	S2	S1	S2	S1	S2
ZITE7402	Introduction to Simulation	✓		✓		✓		✓	
ZITE8401	Analysis of Military Systems		✓				✓		
ZITE8402	Concept Development, Experimentation and Wargaming				✓				✓
ZITE8403	Decision Analysis	✓		✓		✓		✓	
ZITE8404	Intro to Defence Operations Research		✓		✓		✓		✓
ZITE8405	Optimisation Techniques	✓				✓			
ZITE8411	Warfare Modelling and Analysis			✓				✓	
ZPEM8301	Statistical Trials Analysis	✓				✓			
ZPEM7301	Introduction to Data Analysis		✓		✓		✓		✓

Note:

- UNSW@ADFA reserves the right to cancel courses if enrolments are too small. (UNSW@ADFA notes that students will also be advised to change courses if enrolments are small in a course but large in another available course.)
- Beyond 2008, it is intended that the 2008 schedule will be repeated in even-numbered years and the 2007 schedule will be repeated in odd-numbered years.
- UNSW@ADFA reserves the right to review this timetable if future staffing arrangements impact on course availability.

## ICT Management Plan

No.	Course Title	On Campus	Distance Mode
<b>Compulsory</b>			
ZITE8116	Information Systems Policy and Strategy	S2	S2
ZITE8136	Software Project Management	S2	S2
ZITE8138	Systems Planning	S2	S2
ZITE8144	Information and Communication Technology Processes	S2	
<b>Electives</b>			
ZITE8104	Computer Security	S1	S1
ZITE8110	Decision Support Systems	S1	
ZITE8114	Electronic Business	S2	S2
ZITE8117	Integrating Information Systems Technologies	S1	S1
ZITE8118	Integrating the Enterprise and IS Functions	S2	S2
ZITE8199	Project – Information Technology	S1, S2	S1, S2
ZITE8226	Systems Engineering Practice	S2	S2

**Information Technology Plan****Foundation Courses**

No.	Course Title	On Campus	Distance Mode
ZITE7101	Introduction to Data Networks	S2	S2
ZITE7102	Introduction to Database Systems	S2	S2
ZITE7103	Introduction to Programming	S1	S1
ZITE7104	Introduction to Telecommunications	S1	S1
ZITE7105	Introduction to the Web	S1	S1
ZITE7106	Systems Analysis and Design	S2	S2

**GradDip/Masters Courses**

No.	Course Title	On Campus	Distance Mode
ZITE8101	Advanced Java Programming	S2	
ZITE8102	C3I Systems	S1 (IDM) Intensive Feb 2006	
ZITE8103	Computer Graphics	S2	
ZITE8104	Computer Security	S1	S1
ZITE8105	Computer Speech Processing	S2	S2
ZITE8106	Cryptography	S2	S2
ZITE8108	Data Structures and Algorithms	S2	S2
ZITE8110	Decision Support Systems	S1	
ZITE8111	Directed Studies in Information Technology 1	S1, S2	S1, S2
ZITE8112	Directed Studies in Information Technology 2	S1, S2	S1, S2
ZITE8114	Electronic Business	S2	S2
ZITE8115	Information Operations	S1	S1
ZITE8116	Information Systems Policy and Strategy	S2	S2
ZITE8117	Integrating Information Systems Technologies	S1	S1
ZITE8118	Integrating the Enterprise and IS Functions	S2	S2
ZITE8119	Internetworking	S1	
ZITE8120	IT Special Topic 1	S1	S1
ZITE8121	IT Special Topic 2	S1	S1
ZITE8122	IT Special Topic 3	S2	S2
ZITE8123	IT Special Topic 4	S2	S2
ZITE8126	Languages of the Web	S1	
ZITE8130	Network Management and Troubleshooting	S1	
ZITE8132	Object Oriented Programming	S1	S1
ZITE8133	Operating Systems	S1	
ZITE8136	Software Project Management	S2	S2
ZITE8137	Systems and Network Administration	S1	
ZITE8138	Systems Planning	S2	S2
ZITE8139	Telecommunications Design and Management	S2	
ZITE8141	WAN Technologies	S2	
ZITE8199	Project - Information Technology (12UOC)	S1, S2	S1, S2
ZITE8216	Principles of Software Engineering	S2 RAAF Retention Scheme Only	
ZITE8219	Satellite Communications	S1	S1
ZITE8221	Spaceborne Imaging Technology	S1	

ZITE8901	Case Studies in Information Technology	S1
ZITE8902	Professional Practises	S2
ZITE8903	Research Methods in Information Technology	S1
ZPEM8202	Principles of Geographic Information Analysis and Remote Sensing	S1
ZPEM8206	Applications in Geographic Information Analysis	S2 IDM (August 14-18, 2006)

Other courses not available in 2006 but possibly available in future years are listed below.

No.	Course Title	
ZITE8109	Databases and E-Commerce Transaction Management	Not offered in 2006
ZITE8128	Modern Heuristic Techniques	Not offered in 2006
ZITE8129	Multimedia and Virtual Environments	Not offered in 2006
ZITE8131	Object Oriented Analysis and Design	Not offered in 2006
ZITE8134	Software Architecture	Not offered in 2006
ZITE8135	Software Engineering and Ada	Not offered in 2006
ZITE8140	User Interface Construction	Not offered in 2006
ZITE8142	Web Design	Not offered in 2006
ZITE8208	Digital Video Communications	Not offered in 2006
ZITE8214	Neural Networks	Not offered in 2006
ZITE8220	Software Engineering	Not offered in 2006
ZITE8405	Optimisation Techniques	Not offered in 2006
ZITE8410	Soft Systems Methodologies	Not offered in 2006

### Doctorate of Information Technology

No.	Course Title	On Campus
ZITE8901	Case Studies in Information Technology	S1
ZITE8902	Professional Practices	S2
ZITE8903	Research Methods in Information Technology	S1
ZITE8998	DIT Dissertation (F/T)	S1, S2
ZITE8999	DIT Dissertation (P/T)	S1, S2

### Operations Research and Statistics Plan

#### Foundation Courses

No.	Course Title	On Campus	Distance Mode
ZITE7103	Introduction to Programming	S1	S1
ZITE7401	Introduction to Management Science	S2	S2
ZITE7402	Introduction to Simulation	S1	S1
ZPEM7301	Introduction to Data Analysis	S2	S2

**GradDip/Masters Courses**

No.	Course Title	On Campus	Distance Mode
ZACM8327	Maximum Entropy Analysis	S1	
ZITE8199	Project – Information Technology (12UOC)	S1, S2	S1, S2
ZITE8403	Decision Analysis	S1	S1
ZITE8404	Introduction to Defence Operations Research		S2
ZITE8406	OR Special Topic 1	S1	
ZITE8407	OR Special Topic 2	S1	
ZITE8408	OR Special Topic 3	S2	
ZITE8409	OR Special Topic 4	S2	
ZPEM8304	Statistical Forecasting	S2	S2
ZPEM8307	Financial Mathematics	S1	S1

Other courses not available in 2006 but possibly available in future years are listed below.

No.	Course Title	On Campus	Distance Mode
ZITE8128	Modern Heuristic Techniques	Not offered in 2006	
ZITE8405	Optimisation Techniques	Not offered in 2006	
ZITE8410	Soft Systems Methodologies	Not offered in 2006	
ZPEM8301	Statistical Trials Analysis	Not offered in 2006	
ZPEM8308	Reliability and Maintainability	Not offered in 2006	
ZPEM8501	Weapons Assessment	Not offered in 2006	

**Software Development Plan**

No.	Course Title	On Campus	Distance Mode
<b>Compulsory</b>			
ZITE8108	Data Structures and Algorithms	S2	
<b>Electives</b>			
ZITE8101	Advanced Java Programming	S2	
ZITE8103	Computer Graphics	S2	
ZITE8132	Object Oriented Programming	S1	S1
ZITE8143	Distributed Applications	S2	
ZITE8145	Soft Computing	S2	
ZITE8199	Project – Information Technology	S1,S2	S1, S2

Other courses not available in 2006 but available in future years are listed below.

No.	Course Title	On Campus	Distance Mode
ZITE8129	Multimedia and Virtual Environments	Not offered in 2006	
ZITE8131	Object Oriented Analysis and Design	Not offered in 2006	
ZITE8134	Software Architectures	Not offered in 2006	
ZITE8140	User Interface Construction	Not offered in 2006	

**Systems and Network Administration Plan**

No.	Course Title	On Campus	Distance Mode
<b>Compulsory</b>			
ZITE8119	Internetworking	S1	
ZITE8133	Operating Systems	S1	
ZITE8137	System and Network Administration	S1	
<b>Electives</b>			
ZITE8104	Computer Security	S1	S1
ZITE8106	Cryptography	S2	S2
ZITE8126	Languages of the Web	S1	
ZITE8130	Network Management and Troubleshooting	S1	
ZITE8139	Telecommunications Design and Management	S2	
ZITE8141	WAN Technologies	S2	
ZITE8143	Distributed Applications	S2	
ZITE8199	Project – Information Technology	S1, S2	S1, S2
ZITE8219	Satellite Communications	S1	S1

**Web Technologies Plan**

No.	Course Title	On Campus	Distance Mode
<b>Electives</b>			
ZITE8101	Advanced Java Programming	S2	
ZITE8114	Electronic Business	S2	S2
ZITE8117	Integrating Information Systems Technologies	S1	S1
ZITE8126	Languages of the Web	S1	
ZITE8143	Distributed Applications	S2	
ZITE8145	Soft Computing	S2	
ZITE8199	Project – Information Technology	S1, S2	S1, S2

Other courses not available in 2006 but available in future years are listed below.

No.	Course Title	
ZITE8129	Multimedia and Virtual Environments	Not offered in 2006
ZITE8140	User Interface Construction	Not offered in 2006
ZITE8142	Web Design	Not offered in 2006



# POSTGRADUATE COURSE INFORMATION (COURSE CATALOGUE)

For assistance with the terms and abbreviations appearing in the Course Catalogue, please refer to the ADFA Handbook Guide on page 7.

**Disclaimer:** The pre-requisites and corequisites listed within the following course descriptions indicate the assumed knowledge for the particular course. The pre-requisite course provides you with the appropriate foundation knowledge in order to progress to the course in question. Students are expected to be aware of the required pre-requisites and it is your responsibility to ensure that you have met any of the necessary pre-requisites and corequisites before enrolling in a course.

**Course Availability:** UNSW@ADFA reserves the right to cancel courses for which there are insufficient enrolments (normally a minimum of six is required). Advice of cancellation would normally be given to students within the first two weeks of teaching in a given session.

## SCHOOL OF AEROSPACE, CIVIL AND MECHANICAL ENGINEERING

### ZACM7101

#### Introduction to Blast

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* School Office

Introduction to explosives. Blast waves. Blast wave interactions with solid surfaces. Internal blast loads. Underwater explosions. Groundshock. Introduction to blast resistant design. Use of computer packages.

### ZACM7102

#### Introduction to Structures

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* School Office

Studies of the properties of structures, centroids of areas, second moments of area, normal and shear stresses and strains, stress-strain relationships. Considerations of Hooke's law, moduli of elasticity and rigidity, Poisson's ratio, strain energy, beams in bending, determination of stress and deflections in statically determinate beams. Analysis of statically determinate trusses, introduction to stiffness method, design of simple structural elements

### ZACM7103

#### Occasional Elective 1

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* School Office

Occasional electives are given by members of staff, external lecturers or visitors on a topic of immediate relevance to civil engineering.

### ZACM7104

#### Occasional Elective 2

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC9 HPW3

NOT OFFERED IN 2006

*Staff Contact:* School Office

Occasional electives are given by members of staff, external lecturers or visitors on a topic of immediate relevance to civil engineering.

### ZACM7105

#### Occasional Elective 3

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC12 HPW3

NOT OFFERED IN 2006

*Staff Contact:* School Office

Occasional electives are given by members of staff, external lecturers or visitors on a topic of immediate relevance to civil engineering.

### ZACM8302

#### Aero-Mechanical Systems

UC School of Aerospace, Civil and Mechanical Eng

UOC6

NOT OFFERED IN 2006

*Staff Contact:* School Office

General arrangements of aircraft systems. Purpose of various aircraft systems. Design of mechanical draft systems. Overview of non-mechanical aircraft systems. Systems integration. Aircraft power plant applications, with emphasis on gas turbines. Ideal and real operating cycles and cycle calculations. Gas turbine combustion processes. Thermodynamic performance and propulsive efficiency of jet engines.

**ZACM8303****Aerospace Vehicle Technologies**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW4

S2 on-campus

*Staff Contact:* Dr R Heslehurst

This course aims to introduce students to the principles of aerospace vehicle design and operations.

The course content is introductory in nature and covers the fundamental aspects of aerospace engineering and operations. The course studies specifically the aeroplane as a total system, the basic aircraft components and their functions are discussed. The application of aerospace principles (aerodynamics, thermodynamics and performance) are covered in determining the behaviours of an aeroplane. Astronautics principles are also introduced.

**ZACM8304****Aircraft Structural Repair Methodologies**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW30

NOT OFFERED IN 2006

*Staff Contact:* School Office

Define the principles and requirements of structural and systems repair. Review aircraft structural design analysis methods and damage assessment techniques. Develop repair design schemes to structures and systems based on technical skills and the availability of materials and equipment. Determine repair fabrication methods. Theory of load transfer in structural joints. Review of joining methods (mechanical fasteners, welding and adhesive bonding). Joint design fundamentals and practices. Joint structural analysis, durability and environmental effects.

**ZACM8305****Civilian and Military Airworthiness Requirements, Philosophies and Procedures**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW30

S2 Intensive delivery

*Staff Contact:* Dr R Heslehurst

A historical background of both civilian and military airworthiness requirements, including contrasts. Overview of the civilian and military airworthiness philosophies. Details of ADF airworthiness procedures and the certification process. Case studies.

**ZACM8306****Professional Practice - Aerospace Engineering**

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC6

S1 on-campus, S2 on-campus

*Staff Contact:* Dr W Smith

This course is restricted to students enrolled under the RAAF Engineers Retention Scheme. An essay in approved form to explore issues related to the professional practice of aerospace engineering. Successful completion of Engineer Officer - Basic Course plus at least one of the following professional development courses is required: Engineer Officer - Electronics Ground, Electronics Avionics, Aeronautical, or Armament Specialist Course.

**ZACM8307****Weapons Engineering**

UC School of Aerospace, Civil and Mechanical Eng

UOC6

S2 on-campus

*Staff Contact:* Dr J Milthorpe

Explosives. Effect of blast, fragmentation and shaped charge warheads. Kinetic energy penetrators. Propellant charges. Fuses, initiators, detonators and safe/arm devices. Dynamics of unguided weapons: fin and spin stabilization. Missile guidance techniques. Physics and accuracy of missile sensors, and effect on guidance. Advanced guidance and sensor systems. Prediction techniques for missile aerodynamics. Propulsion, Storage, maintenance, transport and launch considerations.

**ZACM8308****Facility and Property Management**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW3

S1 distance, S1 on-campus

*Staff Contact:* Mr A White

This course focuses on the procurement, management and disposal of Defence facilities. The course structure includes: organisation design and evaluation procedures and their translation to facilities; location theory, dynamic simulation and virtual reality. Facility procurement strategies, finance, delivery, conversion and disposal are modelled on a comparative basis. Information systems to support the management of the physical and logical configuration. Policy development process and facility procurement process. Overview of building design, construction and management phases.

**ZACM8309****Project Management Body of Knowledge**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW3

S1 distance, S1 on-campus

*Staff Contact:* Mr A White

This course focuses on the distinctive nature of project management in Defence, the public sector generally and higher corporate levels of the private sector where the project manager is orchestrating (rather than controlling) a political, bureaucratic, technical and contractual environment. The course ranges broadly across key facets of project management, such as quality management, configuration management, risk management and contract management.

**ZACM8310****Project Systems Modelling**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW3

S2 distance

*Staff Contact:* Mr E Wilson*Prerequisite/s:* ZACM8309

This course enjoins aspects of Systems Engineering with information Systems required to support major Defence Projects. The topics are covered in depth and students apply high end commercial software when processing assignments. Topics include: Systems Engineering, Requirements Engineering and Management, Configuration Management, Strategic and Technical Risk Management, Source Selection and Project Performance Measurement.

**ZACM8312****System Dynamics Modelling**

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* School Office*Prerequisite/s:* ZACM8325

Systems Dynamics is a science that has its origins in engineering control theory, although systems concepts cross most disciplines. System Dynamics is the rigorous study of organisational problems, from a holistic or systemic perspective, where there is dynamic behaviour (quantities changing over time) and where feedback impacts significantly on system behaviour. It provides the framework and rules for qualitative description, exploration and analysis of such systems in terms of their processes, information, boundaries and strategies, thereby facilitating quantitative computer simulation modelling and analysis to assist understanding of system structure and control.

This course focuses on the application of system dynamics modelling in strategic and corporate environments, with an emphasis on Defence. However, the course has wide applicability across technical, environmental and social systems. This course will run for full Saturdays on the first 5 of 7 weeks of the session; thereafter students will meet in syndicates at times of their choosing.

**ZACM8313****Source Selection in Projects**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW3

S1 distance, S1 on-campus

*Staff Contact:* Mr A White

This course focuses on the pre-contract activities generally known as Source Selection within a Defence materiel context. Physical systems, logical systems and Software, require different Requirements Engineering methodologies. The resulting specifications provide the foundation for the tendering process.

The management of the tender process occurs within a legal and regulatory framework. The evaluation of tenders goes beyond traditional multiple criteria decision analysis to include risk. The evaluation results provide the foundation for structured negotiations. The data management required to support all phases of Source Selection is significant. Commercial software dedicated to the various aspects of Source Selection will be analysed. The tendering process occurs within a political environment which must be recognised and accounted.

**ZACM8315****Special Elective 1: Project Management**

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC6 HPW3

S1 distance, S1 on-campus, S2 distance, S2 on-campus

*Staff Contact:* Dr W Smith*Prerequisite/s:* ZACM8309

Special electives are given by members of staff and external lecturers or visitors on a topic of immediate relevance. Alternatively a literature review of the technology in a specific area or a design project of appropriate intellectual and technical challenge may be undertaken.

**ZACM8316****Special Elective 2**

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC6 HPW3

S1 on-campus, S2 on-campus

*Staff Contact:* Dr W Smith

Special electives are given by members of staff and external lecturers or visitors on a topic of immediate relevance. Alternatively a literature review of the technology in a specific area or a design project of appropriate intellectual and technical challenge may be undertaken.

**ZACM8317****Special Elective 3**

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC6 HPW3

S1 on-campus, S2 on-campus

*Staff Contact:* Dr W Smith

Special electives are given by members of staff and external lecturers or visitors on a topic of immediate relevance.

Alternatively a literature review of the technology in a specific area or a design project of appropriate intellectual and technical challenge may be undertaken.

**ZACM8318****Special Elective 4**

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC6

S1 on-campus

*Staff Contact:* Dr W Smith

Special electives are given by members of staff and external lecturers or visitors on a topic of immediate relevance.

Alternatively a literature review of the technology in a specific area or a design project of appropriate intellectual and technical challenge may be undertaken.

**ZACM8319****Special Elective 5**

UC School of Aerospace, Civil and Mechanical Eng

UOC12

NOT OFFERED IN 2006

*Staff Contact:* School Office

Special electives are given by members of staff and external lecturers or visitors on a topic of immediate relevance.

Alternatively a literature review of the technology in a specific area or a design project of appropriate intellectual and technical challenge may be undertaken.

**ZACM8324****Project Administration**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW3

S2 distance, S2 on-campus

*Staff Contact:* TBA

*Prerequisite/s:* ZACM8309 or ZINT8326 or equivalent knowledge as assessed by the Program Authority.

This capstone project management course analyses the environment within which complex projects are defined and delivered, including organisational, political, financial and legal aspects: detail and dynamic complexity of projects are analysed through case studies, building appreciation of reasons for projects succeeding or failing and how major projects might be better managed.

The demands of Parliament and Government with respect to corporate governance and impositions on the management of major projects. Economic and financial considerations in the determination of project viability are analysed. The law underpinning contracts is canvassed together with the design of forms of agreement, remedies available and options for dispute resolution.

**ZACM8325****System Dynamics of Project Organisation**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW3

S1 distance, S1 on-campus

*Staff Contact:* Mr E Wilson

"Systemic Failure" became a familiar summation for project disasters of the 20th century, from bridge collapses to hospital demolition. This course focuses on understanding the "systemic" in complex projects, to minimise risk of failure. This unit provides a foundation in general systems theory and then focuses on systems thinking competencies relevant to the project organisation, addressing methodologies and tools such as soft systems methodology, cognitive mapping, causal loop and influence diagrams and system archetypes. These methodologies provide insight into the capability maturity of project delivering organisations. In Session 1, this course will run for full Saturdays on the first 5 of 7 weeks of sessions ; thereafter students will met in syndicates at times of their choosing.

**ZACM8326****Vehicles and Mobility**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW4

S2 on-campus

*Staff Contact:* Dr W Smith

This course provides the technical factors that affect military vehicle design, including armoured fighting vehicles. Topics include vehicle design, fabrication, mechanics, propulsion, handling, power supply systems and key aspects of associated project management. Terra-mechanics, mobility, counter-mobility and reliability are also addressed.

**ZACM8327****Maximum Entropy Analysis**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr R Niven

*Prerequisite/s:* ZPEM1302 or ZPEM1304 or equivalent

This course is based on the concept of entropy, one of the most fundamental discoveries of human thought, and the application of Jaynes' "maximum entropy method" to determine the "most probable state" of a system composed of individual entities. Course participants will learn - in theory and application - the tremendous power of Jaynes' method for the analysis of engineering, scientific and human systems.

To do this, it is first necessary to understand the concept of probability, and to appreciate the probabilistic basis of entropy. Topics include: Concept of probability, information theory, plausible reasoning, sampling theory. Orthodox and Bayesian statistical methods. Concept of entropy, Shannon entropy, cross-entropy, maximum entropy methods, Jaynes relations, fluctuation theory. Systems analysis: thermodynamics, Carnot efficiency, exergy analysis, life cycle analysis, ecological indices. Other applications in fluid and solid mechanics, transport, logistics, commerce, social systems (topics will be selected based on students' interests). Non-Shannon entropies, inverse methods, transient processes.

### **ZACM8501**

#### **Project Report - Aerospace Engineering**

UC School of Aerospace, Civil and Mechanical Eng

UOC6

S1 Intensive delivery, S2 Intensive delivery

*Staff Contact:* Dr W Smith

Research project on a topic of relevance to the program undertaken plus report in approved form

### **ZACM8502**

#### **Project Report - Civil Engineering**

UC School of Aerospace, Civil and Mechanical Eng

Enrolment requires School approval

UOC12 HPW6

S1 on-campus, S2 on-campus

*Staff Contact:* Dr W Smith

Research project on a topic of relevance to the program undertaken plus report in approved form

## **SCHOOL OF BUSINESS**

### **ZBUS7101**

#### **Introduction to Management**

UC School of Business

UOC6 HPW3

S1 on-campus, S1 distance

*Staff Contact:* School Office

This course offers a general introduction to the field of management appropriate to the needs of students who have not undertaken formal study in the area before.

### **ZBUS7102**

#### **Introduction to Project Management**

UC School of Business

UOC6 HPW3

S2 distance, S2 on-campus

*Staff Contact:* Ms E Barber

This course identifies and analyses the components of project management, the associated management tools and procedures and the roles and responsibilities of project managers.

### **ZBUS7103**

#### **Economics for Managers**

UC School of Business

UOC6 HPW3

S1 distance, S1 on-campus

*Staff Contact:* Dr J Seo

The course is an introduction to economics with a special focus on the managerial applications. Topics covered may include the operation of markets generally in the Australian context, business decision making, the role of government in the economic environment, the determinates of system-wide levels of economic activity and the drivers of change in major economic aggregates.

### **ZBUS8101**

#### **Strategic Management**

UC School of Business

UOC6 HPW3

S1 distance, S1 on-campus, S2 on-campus

*Staff Contact/s:* Dr K Sharpe (S1 distance),  
Dr G Manger (S1 on-campus),  
Dr K Sharpe (S2 on-campus)

The objective of this course is to investigate the role of strategy in achieving organisational success in commercial and public sector environments. It examines the nature of organisational objectives, capabilities and strategies and, in particular, the role of corporate and business strategies as determinants of superior performance.

### **ZBUS8102**

#### **Organisational Behaviour**

UC School of Business

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr G Manger

This course analyses the behaviour of individuals and groups within organisational structures and the interactions that occur between the individual, the group and the organisation. Students will analyse the relationships between patterns of human behaviour and management concepts and practices, and will develop the conceptual framework required to assess the effectiveness and efficiency of those practices.

### **ZBUS8103**

#### **Human Resource Management**

UC School of Business

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr H Cheah

This course examines the theory and practice of human resources management. It provides students with an appreciation of the role of human resources within an organisation, and studies the manner in which the management of people in the workplace affects organisational performance.

**ZBUS8104****Legal Process and Procedure**

UC School of Business

UOC6 HPW3

S2 on-campus

*Staff Contact:* Mr G Lea

This course is designed to provide students with an introduction to the Australian legal system and the substantive areas of law affecting contractual relationships.

**ZBUS8105****Finance and Investment Appraisal**

UC School of Business

UOC6 HPW3

S2 distance, S2 on-campus,  
S1 Intensive Delivery (June 2006)

*Staff Contact:* Mr M Tani Bertuol (S2 on-campus);  
School Office (S2 distance);  
Mr M Tani Bertuol (Intensive Delivery)

The course deals with investment evaluation techniques for financial and other investments under conditions of risk and uncertainty, both for public and private enterprises. Topics covered may include standard techniques such as discounted cash flow and cost benefit analysis and financial statement analysis; the capital asset pricing model; security evaluation models; and corporate finance and financial institutions in Australia.

**ZBUS8201****Leadership in Organisations**

UC School of Business

UOC6 HPW3

S1 distance, S1 on-campus

*Staff Contact:* Assoc Prof I Densten

This course develops an understanding of leadership as a holistic process that involves influencing people both inside and outside the organisation. The dynamics of interpersonal influence processes are investigated, with particular attention given to the broader conceptualisation of leadership style, such as 'transformational' and 'transactional' leadership.

**ZBUS8202****Public Sector Human Resource Management**

UC School of Business

UOC6 HPW3

S2 distance, S2 on-campus

*Staff Contact:* Dr J Mazanov

This course examines human resource management in the Australian public sector. The analysis considers the theoretical framework of human resource management in the Australian Public Service and the realities of management in practice.

**ZBUS8203****Organisation Development and Change**

UC School of Business

UOC6 HPW3

S2 on-campus

*Staff Contact:* Dr H Cheah

The course focuses on the process of development and change within organisations. It examines the principal characteristics of and differences between effective or healthy and ineffective or dysfunctional organisations. Students learn how to diagnose organisation performance, and how to plan, implement and evaluate the effectiveness of organisation change. They study how organisational performance can be improved through the implementation of a change process guided by behavioural science knowledge, methods and techniques.

**ZBUS8301****Technology and Innovation**

UC School of Business

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof P Hall

This course offers perspectives on the management of technological innovation as the basis for analysing the strategic role of technological investment in competition and the achievement of organisational goals. Assessment includes a significant research-based component in the area.

**ZBUS8302****Logistics**

UC School of Business

UOC6 HPW3

S1 on-campus

*Staff Contact/s:* A/Prof S Markowski (ATSOC) and  
Mr E Antoniak (non-ATSOC)

In this course students examine the basic concepts and techniques of logistics management within the framework of an integrated logistics system. Various civilian and military applications are considered.

**ZBUS8303****Strategic Procurement**

UC School of Business

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* School Office

This course offers analysis of the process of capability development and strategic procurement, with special reference to the public sector. It may be expected that defence procurement will receive particular attention. Assessment may include a significant research-based component.

**ZBUS8304****Case Studies in Technology Management**

UC School of Business

UOC6 HPW3

S2 on-campus

*Staff Contact:* Mr G Upstill

This course offers perspectives on the practice of technology management through case studies drawn from a variety of organizational contexts. The case studies address some of the issues covered by more general analysis of principles and processes in other components of the equipment and technology plan.

**ZBUS8401****Team Project: Technology Management**

UC School of Business

UOC6 HPW3

S2 on-campus

*Staff Contact:* Mr G Upstill

This course is restricted to members of the Australian Technical Staff Officers' Course (ATSOC). It has the objective of testing students' ability to undertake a technology management based project that draws on Australian and international defence capability and technology management experience. Projects are undertaken by small groups of students, each of which will be required to set up a task, prepare a project plan, collect data, conduct experiments and interviews (as appropriate), analyse results, formulate recommendations, prepare a report and present findings. Students are expected to demonstrate project management and teamwork skills in achieving group outcomes.

**ZBUS8501****Research Project - Management Studies**

UC School of Business

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Prof P Hall

An option of completing a research project of c.12,000 words spanning two sessions is available to candidates in the Masters program with a superior academic record. Approval for enrolling in the course requires the prior endorsement of the Head of School. This project may not form part of a specialist plan. The option is available only to candidates who achieve either: (a) an average of 70 percent or better in the second year of a part-time Masters program; or (b) an equivalent or better result, as determined by the postgraduate Coursework Education Committee, in their management-related entry qualifications. Direct entry candidates may also be admitted to the research project at the discretion of the committee on the recommendation of the Head of School (course authority) or the Program Coordinator.

**ZBUS8502****Research Project - Economics and Management**

UC School of Business

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Prof P Hall

Masters students may apply to undertake a Research Project on a topic in the area of Defence Studies with the approval of the Head of the School of Business, provided resources are available. The normal prerequisite will be a Distinction average over four courses.

The project topic will be determined by special consultation with the program authority and the student. The total length should not exceed 12,000 words.

**ZBUS8701****Business Management***Staff Contact:* Prof P Hall

S1 UOC6 HPW25

*Prerequisites:* Enrolment in 6958 or 6959 (ACSC)

This course is a Management Elective in the Australian Staff and Command College and is open only to course members admitted to that program. It comprises an integrated study of management in a corporate environment with particular reference to the issues and concerns of a large public organisation like Defence. It considers the formulation of general planning and strategy for such an organisation and within that strategy activities such as budgeting, costing and financial control; procurement, project management and logistics; intellectual property management; outsourcing; and information systems management.

**ZBUS8702****Project Management***Staff Contact:* Mr E Antoniak

S1 UOC6 HPW25

*Prerequisites:* Enrolment in 6958 or 6959 (ACSC)

This course is a Management Elective in the Australian Staff and Command Course and is open only to course members admitted to that program. It covers all aspects of the project management process with special reference to the management of defence capability and includes: project scope, time and cost management; project human resource requirements management; and project communication, risk management and procurement.

**ZBUS8703****Public Sector Management***Staff Contact:* Dr R Connell

S1 UOC6 HPW25

*Prerequisites:* Enrolment in 6958 or 6959 (ACSC)

This course is a Management Elective in the Australian Staff and Command College and is open only to course members admitted to that program.

It comprises a study of management in the contemporary public sector including evaluation of governance requirements and drivers for change in the public sector; analysis of accountability and authority within the public sector; treatment of managing relationships across government departments and with other sectors; ethics; and discussion of operational management issues.

## SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

### ZHSS7201

#### Modern Naval History and Strategy

UC School of Humanities and Social Sciences

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* Dr L Reeve

We will study navies and sea power in the modern world, from the 1890s to the present, concentrating on various thematic issues. The approach will be international, including Australia and the Asia-Pacific. Themes will include how far classical arguments for sea power remain valid, how far there are naturally naval and continental powers and national naval strategic traditions, how far navies have special capabilities, and modern naval and maritime strategic ideas. Other topics will include naval command and commanders, naval tactics, amphibious and joint warfare, sea power and grand strategy, and contemporary circumstances and the future of sea power.

### ZHSS7401

#### Asia-Pacific Security: The Dynamics of Change

UC School of Humanities and Social Sciences

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

This course examines the key elements shaping the Asia-Pacific security environment in the early 21st century. It blends an understanding of the principal themes and trends that are influencing the progress of the region as a whole with detailed insights into particular nations and the strategic issues most likely to impact on its future direction and stability. Students will be encouraged to explore the main issues in depth and to identify the relationships between them and their practical implications for policy makers. Particular attention is given to analysing security flashpoints and to the new security challenges.

### ZHSS7402

#### Security Issues in Northeast Asia

UC School of Humanities and Social Science

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* A George-Mulgan

The purpose of this course is to examine in depth the contemporary strategic dynamics of the Northeast Asian region. The course will examine the nature and regional impact of the security policies and roles of the four major powers whose interests intersect in Northeast Asia, the implications for regional security of recent developments in America's bilateral alliances with Japan and South Korea and in US relations with China, the interaction between two aspiring regional hegemony (China and Japan), and possible sources of tension and conflict. The potential consequences of US-sponsored missile defence programs and the management of territorial disputes will be considered.

### ZHSS8103

#### Exotic Neighbours: Asia-Pacific Literature, Culture and Communication

UC School of Humanities and Social Sciences

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact./s:* Mr P Tickell and Mr J Doyle

The course ranges over selected literary, dramatic and cinematic works of cultures of the Asia-Pacific region including those works generated or affected by contact with the West. Concepts such as homeland, community, Asian-ness and Orientalism will be examined. Focus on specific countries of the region will change from year to year, and may include travel writing and early ethnographic writing about first and later contacts between Europeans and local cultures.

### ZHSS8109

#### Australian Literary Culture

UC School of Humanities and Social Sciences

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

This course explores a variety of genres in Australian writing with a view to examining the formation of key ideas and images in Australian culture and society. Special attention will be given in 2005 to Robbery Under Arms, versions of the Ned Kelly myth and narratives of social justice and freedom in contemporary Australia.



## ZHSS8112

### Special Study

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

No course description available.

## ZHSS8115

### Literary Theory and the History of Communication

UC School of Humanities and Social Sciences

UOC6 HPW2

S2 on-campus

*Staff Contact/s:* Mr J Doyle and Prof P Eggert

This course provides an introduction to literary theory, textual scholarship and the history of the book. The course ranges widely from the empirical to the theoretic, selecting from topics such as orality vs literacy, writing systems, book-production and reading practices, the emerging writing and reading practices of electronic textuality, to concepts such as authorship, authenticity, text, work and document. Some of the most influential literary, cultural and editorial theories of the last half-century will be dealt with.

## ZHSS8119

### Academic Discourse I: Analysis and Writing (for international students)

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC6 HPW2

S1 on-campus

*Staff Contact:* Mrs F Cotton

Preliminaries: All applicants will be required to attend the pre-semester Academic Preparation Course and to undertake a written test to evaluate their English language proficiency in order to enrol in this subject. Designed primarily for international students, this course aims to enable students to study academic discourse and to develop the language skills necessary to read effectively and write appropriately in an academic context. The course will develop note-taking, paraphrasing and summary writing skills. Students will critically evaluate a reading specific to their particular disciplines, write a critical review and practise sentence and paragraph construction to develop their essay writing skills. Attention will also be paid to grammatical features, identified in the diagnostic test, which enable writers to convey meaning with greater precision.

## ZHSS8120

### Academic Discourse 2: Analysis and Writing (for international students)

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* Mrs F Cotton

Preliminaries: All applicants will be required to attend the pre-semester Academic Preparation Course and to undertake a written test to evaluate their English language proficiency in order to enrol in this subject. Designed primarily for international students, this course aims to enable students to study academic discourse and to develop the language skills necessary to read effectively and write appropriately in an academic context. The course will develop note-taking, paraphrasing and summary writing skills. Students will critically evaluate a reading specific to their particular disciplines, write a critical review and practise sentence and paragraph construction to develop their essay writing skills. Attention will also be paid to grammatical features, identified in the diagnostic test, which enable writers to convey meaning with greater precision.

## ZHSS8121

### Intensive English Language Skills

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC6 HPW2

Please contact School for details

*Staff Contact:* Mrs F Cotton

This course is designed to develop English language skills as an aid to students taking postgraduate courses. The program of study will be tailored to student needs. The course is only available to international students specially admitted to postgraduate studies by the Presiding Member, or on the recommendation of the Presiding Member, Postgraduate Coursework Education Committee.

## ZHSS8122

### Research Project - English

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC12

NOT OFFERED IN 2006

*Staff Contact:* School Office

Students who choose to undertake a project as part of their MA Program must submit the chosen topic for approval by the Head of School. The project is worth 12 units of credit. Students must be enrolled in the project over at least two sessions.

**ZHSS8201****Contemporary Warfare**

UC School of Humanities and Social Sciences

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* Prof J Grey

This subject deals with conventional warfare as it has developed in the half century or so since the end of the Second World War. Its basic focus is the operational level of war, and it examines aspects of the subject to include guerrilla warfare and low intensity conflict, the evolution of combined arms warfare, amphibious operations, expeditionary warfare and warfare in littoral environments, conventional mobile operations and issues of higher command and decision making, amongst others. It deals with a mixture of thematic issues and specific case studies, grouped around seminar-based instruction.

**ZHSS8202****The History of Australian Defence and Foreign Policy**

UC School of Humanities and Social Sciences

UOC6 HPW2

S2 on-campus, S2 distance

*Staff Contact:* Dr F Cain

This course in the history of defence and foreign policy in Australia examines not only how defence and foreign policy is formed and carried out by political leaders, governments and the official departments, but also the responses to those policies by the Australian people. The course deals with central defence and foreign policy issues in the 20th Century and early 21st century including the breaking of ties with Britain, the US alliance and connections with Asia. Such issues are examined against changes in the economy, political change, industrial development and trading relationships.

**ZHSS8203****History of Pre-Nuclear Military Thought**

UC School of Humanities and Social Sciences

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* Prof P Dennis

The course surveys the development of western military theory from the mid-eighteenth to the mid-twentieth centuries by looking at the works of a number of writers. Their work is placed in the context of the prevailing theory and practice of the time, and their influence or lack of influence is assessed. While it might seem at first glance that these writers have no relevance to contemporary defence problems, least of all in Australia, a closer examination of pre-nuclear theorists shows that the questions they have grappled with have been remarkably constant, and that a study of those questions in their historical context can help sharpen and clarify an assessment of contemporary issues.

**ZHSS8204****Modern Naval History and Strategy B**

UC School of Humanities and Social Sciences

UOC6 HPW2

S2 distance

*Staff Contact:* School Office

We will study navies and sea power in the modern world, from the 1890s to the present, concentrating on various thematic issues. The approach will be international, including Australia and the Asia-Pacific. Themes will include how far classical arguments for sea power remain valid, how far there are naturally naval and continental powers and national naval strategic traditions, how far navies have special capabilities, and modern naval and maritime strategic ideas. Other topics will include naval command and commanders, naval tactics, amphibious and joint warfare, sea power and grand strategy, and contemporary circumstances and the future of sea power.

**ZHSS8205****Occasional Elective**

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

No course description available.

**ZHSS8207****Case Studies in War**

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC6 HPW2

S1 on-campus

*Staff Contact:* A/Prof R Prior

This course investigates command, strategic and tactical decision-making in various wars. Emphasis will be placed on wars of the 20th Century (the Boer War, the First World War, the Second World War, the Korean War, the Vietnam War and more contemporary conflicts). Some case studies, however, may be drawn from the 19th Century or from earlier periods. A feature of this course is that students can expect to be involved with political, strategic and tactical decision making in the form of role-play. The wars to be studied will vary from year to year according to staff availability.

**ZHSS8212****Research Project-History**

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* School Office

Research project on a topic of relevance to the program undertaken plus report in approved form.

**ZHSS8400****Research Project - Politics**

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC12

NOT OFFERED IN 2006

*Staff Contact:* School Office

In place of two Masters courses students may apply to undertake a Research Project in a relevant subject area with the approval of the Course Authority, provided always resources are available. The normal prerequisite will be a Distinction average over four courses (the average of those marks). The project topic will be determined by special consultation between the Course Authority and the student. The research project may be taken over one or two sessions. Enrolling over two sessions must be done in consultation with Student Administrative Services. The total length of the research project should not exceed 12,000 words.

**ZHSS8403****Global Security**

UC School of Humanities and Social Sciences

UOC6 HPW2

S1 distance, S1 on-campus

*Staff Contact:* Dr G Mount

This course considers the nature of security and security studies in the context of global politics. Attention is given to contending theoretical perspectives, the role of strategic culture in defining interests, globalisation, the changing nature of deadly conflict, the dilemmas of weak states, the growing desperation of the world's poor, and ethnic conflict. The course also takes a particular interest in non-military cross border threats such as environmental degradation and change, migration, drugs and other issues that influence how security is understood.

**ZHSS8405****Security Issues in Northeast Asia**

UC School of Humanities and Social Sciences

UOC6 HPW2

S1 on-campus, S1 distance

*Staff Contact:* Dr A George-Mulgan

The purpose of this course is to examine in depth the contemporary strategic dynamics of the Northeast Asian region. The course will examine the nature and regional impact of the security policies and roles of the four major powers whose interests intersect in Northeast Asia, the implications for regional security of recent developments in America's bilateral alliances with Japan and South Korea and in US relations with China, the interaction between two aspiring regional hegemonies (China and Japan), and possible sources of tension and conflict. The potential consequences of US-sponsored missile defence programs and the management of territorial disputes will be considered.

**ZHSS8406****Occasional Option**

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

No course description available.

**ZHSS8409****Asia-Pacific Security: The Dynamics of Change**

UC School of Humanities and Social Sciences

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

This course examines the key elements shaping the Asia-Pacific security environment in the early 21st century. It blends an understanding of the principal themes and trends that are the early 21st century. It blends an understanding of the principal themes and trends that are influencing the progress of the region as a whole with detailed insights into particular nations and the strategic issues most likely to impact on its future direction and stability. Students will be encouraged to explore the main issues in depth and to identify the relationships between them and their practical implications for policy makers. Particular attention is given to analysing security flashpoints and to the new security challenges.

**ZHSS8410****Australian Defence Policy: Concepts and Challenges**

UC School of Humanities and Social Sciences

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

This course provides an in-depth understanding of the dynamics of Australia's strategic and defence policy and the challenges that it is facing in both determining priorities and bridging the gap between desired ends and available means. It examines how the current policies have evolved, the factors that will determine their future shape, and the options available for resolving current and prospective dilemmas. Attention is given to the balance between defence of Australia tasks and broader security commitments, to the tools for producing sustainable capacity (personnel, equipment and national support), and to the complexities of managing security relations with others.

**ZHSS8411****Developing Strategic Policy in the Twenty-First Century**

UC School of Humanities and Social Sciences

UOC6 HPW2

S2 on-campus

*Staff Contact:* Prof S Woodman

This course examines the challenges that strategic defence planners are facing in the new security environment and illuminates the key judgements they must make in developing an effective policy response. It analyses the changing dimensions of security, the shape of future conflict, and the policy tools for managing these developments. Strategies for responding to these changes are considered together with their implications for capability development and operational planning. Emphasis is given to the challenges facing middle and smaller powers and to an understanding of how all the different elements might contribute to preparing a major strategic policy review.

**ZHSS8413****Southeast Asia: Issues in Security Cooperation**

UC School of Humanities and Social Sciences

UOC6 HPW2

S2 distance, S2 on-campus

*Staff Contact:* Prof C Thayer

Why do nations cooperate to ensure their security? Do they do so because it is in their national interest? Or do they do so because they place a value on cooperation as an end in itself? Are security regimes more enduring than security communities in providing a framework for regional order? The course reviews the major traditional and non-traditional security challenges to regional order in Southeast Asia. The course also critically evaluates contemporary security cooperation under the auspices of the ASEAN Regional Forum, the United States and other concerned countries. The course concludes with a crisis exercise in which participants role play.

**ZHSS8415****Transitional Crime and Terrorism**

UC School of Humanities and Social Science

UOC6 HPW2

S1 on-campus, S1 distance

*Staff Contact:* Mr J McFarlane

This course examines the relationship between globalisation, terrorism and transnational crime. It takes a practical view of the effects of the rise of terrorism and the transnational crime on Australian democracy and Australian security.

**ZHSS8416****Seeking the Information Edge: The Role of Modern Intelligence**

UC School of Humanities and Social Sciences

UOC6 HPW2

S2 on-campus, S2 distance

*Staff Contact:* Mr J McFarlane

This course promotes an understanding and awareness of the key challenges facing intelligence policy in the new strategic environment. Its framework is broader than defence, encompassing the wide range of security challenges now confronting nations. It aims to promote a whole of government understanding and approach to the role of modern intelligence in the 21st century in providing accurate, timely and relevant information to support decision makers.

**ZHSS8419****Australian Homeland Security**

UC School of Humanities and Social Sciences

UOC6 HPW2

S1 distance, S1 on-campus

*Staff Contact:* Assoc Prof A Bergin

This course will provide the framework for analysing Australian homeland security. The course will cover such issues as the nature of terrorism and asymmetric warfare, biological, chemical and nuclear terrorism, critical infrastructure protection, cyber-security, the organisation of homeland security in Australia, consequence management, and the role of defence in homeland security. The course will examine the threats, actors and organisational structures and resources required to protect the Australian homeland from the new terror threats and to minimise any damage. The course will involve contributions from the intelligence community, health professionals, and first responders.

**ZHSS8420****Defending Australia: Developing Security Policy in a Changing World**

UC School of Humanities and Social Sciences

UOC12 HPW4

S1 distance, S1 on-campus

*Staff Contact/s:* A/Prof A Bergin and Prof S Woodman

This course provides a comprehensive understanding of Australia's defence and foreign policy and develops insight and skills relevant to responding to current and prospective challenges. It traces the evolution of policy, identifies its fundamental elements, and reviews the international and domestic imperatives shaping its future. Australia's strategic relationships are considered in depth as are the factors shaping defence capability and operations. Particular attention is given to contemporary planning challenges including regional and alliance engagement, stability operations, homeland security, and capability planning amid uncertainty. Specific issue studies introduce students to Australian decision making processes and the dynamics of policy in action.

**ZHSS8421****Defending Australia: Special Study**

UC School of Humanities and Social Sciences

UOC6 HPW2

S2 on-campus, S2 distance

*Staff Contact:* Prof S Woodman

This course builds on ZHSS8420 *Defending Australia: Developing Security Policy in a Changing World*. It offers students the opportunity to undertake in-depth study into a specific aspect of Australian defence and/or foreign policy through a combination of tailored seminars and an extended research paper of 6000-8000 words.

The area/s in which work be undertaken in a particular session are nominated by the School. Completion of ZHSS8420 is a pre-requisite.

**ZHSS8422****Asia-Pacific Security: Regional Security in the New Millenium**

UC School of Humanities and Social Sciences

UOC12 HPW4

S1 on-campus, S1 distance

*Staff Contact:* Prof J Cotton

This course provides an in-depth analysis of the players, the processes and the issues shaping Asia-Pacific Security. Stretching from the major powers of Northeast Asia to the micro-states of the Pacific, it explores the changing dimensions of the security debate, the factors shaping national perspectives and capabilities, and the effectiveness of the different tools of engagement. Individual country studies complement the analysis of critical themes including the impact of strategic culture, the balance between traditional and non-traditional security challenges, the role of multilateral institutions, and the exercise of U.S. hegemony. Studying potential flashpoints tests the intersection of these dynamics.

**ZHSS8423****Asia-Pacific Security - Special Study**

UC School of Humanities and Social Sciences

UOC6 HPW2

S2 distance

*Staff Contact:* Prof J Cotton

This course builds on ZHSS8422 *Asia-Pacific Security: Regional Security in the New Millenium*. It offers students the opportunity to undertake in-depth study into a specific aspect of Asia-Pacific security through a combination of tailored seminars and an extended research paper of 6000-8000 words. The area/s in which work may be undertaken in a particular session are nominated by the School. Completion of ZHSS8422 is a pre-requisite.

**ZHSS8424****Foundations of Strategy and Military Affiars**

UC School of Humanities and Social Science

UOC12 HPW4

S2 distance, S2 on-campus

*Staff Contact:* Prof J Grey

This course provides a grounding in the fundamentals of strategy, the development of modern strategic thought from Machiavelli to the present, including thinking about airpower and seapower, and developments in conventional warfare and military activity since 1945, with an emphasis on the period since 1975. It will provide students with an enhanced understanding of the context in which military activity occurs, and provides the link between understanding policy and decision-making at whole of government level, and the outcomes on the ground, at sea and in the air.

**ZHSS8425****Foundations of Strategy and Military Affairs: Special Study**

UC School of Humanities and Social Sciences

UOC6 HPW4

NOT OFFERED IN 2006

*Staff Contact:* Prof J Grey

This course builds on ZHSS8424 *Foundations of Strategy and Military Affairs*. It offers students the opportunity to undertake in-depth study into a specific aspect of strategic and military affairs through a combination of tailored seminars and an extended research paper of 6000-8000 words. The areas in which work may be undertaken are nominated by the School. Completion of ZHSS8424 is a pre-requisite.

**ZHSS8427****Strategic Studies***Staff Contact:* TBA

S1 UOC6 HPW25

*Prerequisites:* Enrolment in 6958 or 6959 (ACSC)

Strategic Studies is a core module that deals with the factors relevant to the transmission of international power and the conduct of military operations. The module takes an holistic approach to the study of strategy, providing the economic, political and social contexts for military thinking, decision-making and operations. The principal elements of the module are the development of Australian strategic and security policy, the influence of government processes on defence, and the external factors that shape the development of Australia's national strategy. Broad consideration is also given to the nature, causes and evolution of war.

**ZHSS8428****Contemporary Issues and Global Security***Staff Contact:* Dr Gavin Mount

S1 UOC6 HPW25

*Prerequisites:* Enrolment in 6958 or 6959 (ACSC)

Global Security will provide students with an understanding of the key debates in security studies in the context of changes in contemporary global politics. Traditionally, studies in international security have assumed that states are the primary actors in world politics and that the focus of security should be concentrated on conventional military threats. Critical approaches propose that the field must be both 'deepened' and 'widened'. The deepeners observe that non-state actors can increasingly pose threats and consider conditions where human security should take precedence over state security. The wideners argue for the need to consider a range of non-military threats in contemporary world politics. Through a case study approach, the course will examine the practical and ethical implications of these debates in global security for decision making within the military profession and defence planning more generally.

**ZHSS8429****Security Studies (Regional)***Staff Contact:* TBA

S1 UOC6 HPW25

*Prerequisites:* Enrolment in 6958 or 6959 (ACSC)

Security Studies (Regional) in an elective module that focuses on contemporary security issues in the Asia-Pacific Region and the challenges these pose for the Australian Defence Organisation. This module considers four major topics: approaches to analyzing the contemporary security environment in the Asia-Pacific; the factors driving change in the regional power structure since the end of the Cold War; implications of regional security challenges for Australian national security; and an evaluation of bilateral and multilateral approaches to regional security.

**INTERDISCIPLINARY COURSES****ZINT8001****Airpower Seminar Series**

UC School of Humanities and Social Sciences

Enrolment requires School approval

UOC6 HPW6

S1 on-campus

*Staff Contact:* School Office

This course examines the development and application of Airpower in considerable depth. There is a particular emphasis on how Airpower has evolved during the major conflicts of the 20th century. Seminar topics include Airpower and National Strategy, Airpower and 1914-1918, Control of Airpower, Battle of Britain, Area v. Precision Bombing in WW2, Japanese Airpower in WW2, Airpower and Vietnam, the Gulf War, Bosnia, Kosovo, and the Principles of War.

**ZINT8103****Research Methods in the Humanities and Social Sciences (UOC6)**

UC School of Humanities and Social Sciences

UOC6 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

This course introduces students to the methods and pitfalls of attempts to study social and cultural life systematically. It stresses the diversity of the products of social and cultural life, and explores some of the different methods that have been developed to deal with explaining them. It focuses on three disciplines - Literature, History and Politics - that are particularly sensitive to the methodological foundations of their studies, and which have a long record of debate over methodological issues.

**ZINT8104****Research Methods in Humanities and Social Sciences (UOC8)**

UC School of Humanities and Social Sciences

UOC8 HPW2

NOT OFFERED IN 2006

*Staff Contact:* School Office

This course introduces students to the methods and pitfalls of attempts to study social and cultural life systematically. It stresses the diversity of the products of social and cultural life, and explores some of the different methods that have been developed to deal with explaining them. It focuses on three disciplines Literature, History and Politics that are particularly sensitive to the methodological foundations of their studies, and which have a long record of debate over methodological issues.

**ZINT8301****Firepower and Protection**

UC School of Aerospace, Civil and Mechanical Eng

UOC6 HPW12

S1 on-campus

*Staff Contact:* Dr W Smith

This course provides an overview of the technical factors that affect the military use of explosives and propellants, armour materials, guns, guided weapons and light weapons. Topics include military ballistics, gun design, gun fire control, warhead design (including guided weapons), terminal effects and the penetration of armour. This course is restricted to ATSOC members.

## ZINT8326

### Defence Capability and Project Management

UC School of Business

Enrolment requires School approval

UOC6 HPW3

S1 on-campus

*Staff Contact:* Mr E Antoniak

This course is designed principally to meet the requirements of the Australian Technical Service Officers' Course (ATSOC). It provides a comprehensive overview of every aspect of the Defence Capability Management Cycle and a treatment of the major elements of project management. Topic areas covered may include the relationship of project management to strategy; project definition, scheduling, cost and quality planning, risk management, organisation, control, and completion; and contract management.

## SCHOOL OF INFORMATION TECHNOLOGY AND ELECTRICAL ENGINEERING

### ZITE7101

#### Introduction to Data Networks

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 distance, S2 on-campus

*Staff Contact:* Prof J Arnold

*Assumed Knowledge:* ZITE7104 or equivalent

This course introduces the design, implementation, operation and management of data networks. Students will learn about the techniques, devices and protocols used in local and wide area networks.

### ZITE7102

#### Introduction to Database Systems

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 distance, S2 on-campus

*Staff Contact:* Mrs J Backhouse

This course provides a theoretical and practical introduction to modern relational database management systems. It covers data analysis and modelling using entity-relationship techniques, relational theory and normalization, database query languages (SQL and QBE), database security and integrity, physical design principles, and it describes the elements of transaction management and concurrency control.

## ZITE7103

### Introduction to Programming

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 distance, S1 on-campus

*Staff Contact:* Dr D Essam

This is a first course in computer programming that introduces problem solving by computer. Students are introduced to a problem solving methodology together with a modern programming language. A number of practical assessment tasks parallel and guide the student through the acquisition of the semantics and syntax of the programming language.

## ZITE7104

### Introduction to Telecommunications

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 distance, S1 on-campus

*Staff Contact:* Prof J Arnold

The course introduces students to the principal components of telecommunications. Students will learn about telecommunication architectures and standards, concepts and issues in data and multimedia communications, fundamentals of local and wide area networks, applications of techniques and technologies and future directions.

## ZITE7105

### Introduction to the Web

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 distance, S1 on-campus

*Staff Contact:* Mrs J Backhouse

This course introduces students to the basic workings of the Web and issues surrounding the design and construction of Web pages that conform to current and emerging standards. The course considers Web architectures, protocols and standards; web page construction and the use of style sheets; issues of design usability and accessibility; and the role of client-side scripting languages (such as Javascript).

## ZITE7106

### Systems Analysis and Design

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 distance, S2 on-campus

*Staff Contact:* Mrs Jenny Backhouse

The aim of this course is to introduce students to the principles of structured methods that are appropriate for analysing the business requirements of an organisation and for developing the requirement into a specification as the basis for system design. In addition, the course examines the design process of an Information System and how structured methods can be used to produce a design specification for the construction of software that meets business requirements.

**ZITE7201****Analogue Communications**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr X Jia

Fourier series, Fourier and power spectrum, properties of the Fourier transform. Impulse response and transfer function. Random processes, autocorrelation, power spectral density, white and narrowband noise, signal to noise ratio. Amplitude modulation, double, single and vestigial sideband, modulators and demodulators, coherent detection, envelope detection, superheterodyne receiver, performance. Angle modulation, frequency modulation, phase modulation, narrowband FM, modulators and demodulators, pre-emphasis, system comparisons.

**ZITE7202****Communications Systems**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Assoc Prof M Frater

Review of signal characteristics. Closed transmission media; open wire, coaxial cable and optical fibre; dispersion and attenuation characteristics. Design issues in open transmission systems; microwave radio, satellite communications, ULF, ELF and VLF transmission, cellular radio, net radio, troposcatter systems. Link budget analysis. This course will include a major design exercise.

**ZITE7203****Communications and Information Systems**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr M Ryan

This course provides an overview of the fundamental elements required to provide telecommunication services and management information systems. Communication topics include: fundamentals of electric signals; modulation and multiplexing techniques; management of the electromagnetic spectrum and acts controlling its use; video signals and systems; radio wave propagation; basic antenna theory; receiver and transmitter design; types of communications systems; and local and wide area networks. The fundamentals of information systems are presented including: information processing concepts and architectures; operating systems; databases; software languages and development; and the storage, retrieval and management of information.

**ZITE7204****Digital Signal Processing**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr A Lambert

Discrete time systems, Nyquist frequency and Shannon's sampling theorem, aliasing. Fourier Transform, Discrete Fourier Transform, Fast Fourier Transform, spectral leakage. Discrete and circular convolution. The z-transform and its relationship with the Fourier and Laplace transforms. Digital filters, filter realisation, design of finite impulse response and infinite impulse response filters, design of digital filters from analogue filters. Digital signal processing hardware. A project will comprise approximately one third of the course.

**ZITE7205****Fundamentals of Surveillance Technologies**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 on-campus

*Staff Contact:* Dr M Ryan

This course includes an overview of the technologies and systems utilised in ground, airborne and spaceborne surveillance systems. Topics include an examination of the portions of the electromagnetic spectrum used for surveillance; optics fundamentals; image intensification techniques; thermal imaging; non-imaging infrared systems; fundamentals of lasers; laser systems; fundamentals of RADAR; RADAR systems and their employment; ground, spaceborne and airborne imaging systems; camouflage and concealment techniques; and counter measures.

**ZITE7206****Introduction to Optoelectronic Systems**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 on-campus

*Staff Contact:* Dr E Huntington

The electromagnetic spectrum, the nature of light, black body radiation. The detection process in the visible and infrared spectrum. Operation and characteristics of photon detection devices, photoconductive cells, photodiodes, phototransistors, photoemissive devices and pyroelectric detectors. Effects of noise. Light emitting diodes and diode lasers. Introduction to optical communication systems. A project will comprise approximately one third of the course.



## ZITE7207

### Occasional Elective 1

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

The syllabus for these courses changes from one occasion to the next, allowing the presentation of a relevant topic by a visiting academic or a special lecture course on a trial basis.

## ZITE7208

### Occasional Elective 2

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S2 on-campus

*Staff Contact:* Prof J Arnold

The syllabus for these courses changes from one occasion to the next, allowing the presentation of a relevant topic by a visiting academic or a special lecture course on a trial basis.

## ZITE7209

### Television and Image Transmission Systems

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

The physiology of the human viewer and its impact on television system design, analogue television standards, colour television systems, PAL. Television equipment, cameras, transmitters, receivers, video recorders. An introduction to digital image and video recorders. An introduction to digital image and video transmission. A project will comprise approximately one third of the course.

## ZITE7401

### Introduction to Management Science

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 distance, S2 on-campus

*Staff Contact:* Dr R Sarker

This introductory course examines the quantitative techniques of management science. An introduction to the analytical method is presented together with discussion of the various models including linear programming, network analysis, queuing and inventory modelling, simulation and game theory. Examples will illustrate the application of the models.

## ZITE7402

### Introduction to Simulation

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus, S1 distance

*Staff Contact:* Prof J Arnold

The aim of this course is to introduce students to the principles of simulation. These cover: concepts of modelling, continuous and discrete systems, time stepped and event stepped simulation of queue systems and inventory systems, exposure to simulation languages.

## ZITE8101

### Advanced Java Programming

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 on-campus

*Staff Contact:* Dr TG Freeman

*Assumed Knowledge:* ZITE7103 or equivalent

This course explores more advanced features of the Java packages that support programming, beyond what is covered in ZITE 7103 *Introduction to Programming*. It covers different types of file organisation, the use of threads for concurrent programming, the ability to determine at run-time the properties of an object, the ability to create a class within another class, the ability to call methods in an object running on a remote machine, the use of Servlets and ISP on websites, access to databases, and calling functions written in another language.

## ZITE8102

### C31 Systems

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 Intensive delivery (Feb 2006)

*Staff Contact:* Mr M Ford

The aim of this subject is to contribute to the preparation of middle to upper-level management who must deal with the extraordinarily complicated issues of C31 systems. In more general terms, the subject will be of interest to anyone who has a professional interest in Defence. Topics include: various paradigms for C31 systems and the sub-systems that constitute them; awareness of the various technologies and IT systems that are used to establish these C31 sub-systems; knowledge of some of the factors that influence the design, acquisition and management of C31 systems.

**ZITE8103****Computer Graphics**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Dr TG Freeman*Assumed Knowledge:* ZITE7103 or equivalent

Interactive graphics of 2D and 3D scenes, rubber shape drawing, graphical input event handling, perspective and orthographic views, transformation of coordinate spaces, colour perception and specification, animation, double buffering, ray tracing, surface properties, scene rendering. X Windows, Java and Postscript. Rasterisation algorithms. Programming to produce graphics.

**ZITE8104****Computer Security**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus, S1 distance

*Staff Contact:* Dr L Brown*Assumed Knowledge:* ZITE7104 or equivalent and ZITE8137 or equivalent

This course provides an introduction to the theory and practice used to maintain security on computer systems and networks. Topics may include risk analysis, security policies and management, user identification and access controls, network attacks and defences, firewall design, database security, legal and ethical issues.

**ZITE8105****Computer Speech Processing**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Dr F Clermont

This course introduces theoretical and practical concepts of computer speech processing: speech digitisation; sampling theorem; fundamentals of digital signal processing; human speech production; fundamentals of acoustic phonetics; time-domain and frequency-domain speech analysis; linear-predictive coding; fundamentals of speech synthesis and speech/speaker recognition by computer.

**ZITE8106****Cryptography**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 distance, S2 on-campus

*Staff Contact:* Dr L Brown

This course provides details of the history, theoretical foundations, and current state of cryptographic algorithms. Topics may include classical cipher design and analysis; modern private key block cipher design, details, modes of use and analysis; stream ciphers; an introduction to number theory; public key encryption algorithms; digital signatures and hash functions; key management, X.509 certificates and certificate authorities; quantum computing and quantum cryptography.

**ZITE8108****Data Structures and Algorithms**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 distance, S2 on-campus

*Staff Contact:* Dr D Essam*Assumed Knowledge:* ZITE7103 or equivalent

This is a second course in computer programming, emphasising the underlying data structures to represent the problem space. Particular focus is given to dynamic data structures - their appropriate employment and the algorithms needed to support them. Other topics may include recursive algorithms, programming tools, searching and sorting, algorithm complexity, and file access mechanisms.

**ZITE8109****Databases and E-Commerce Transaction Management**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold*Assumed Knowledge:* ZITE7102 or equivalent

This course presents the principles and practical aspects of analysis, design and related software implementation issues of advanced distributed database and transaction processing and workflow management systems. It considers how cooperative database transaction and workflow models can be used for designing web-enabled E-Commerce and E-Market systems in an integrated internet environment. Further, we consider the design of E-Business Models and Information Architectures based on database and transaction processing systems. We describe how business processes can be realised using workflow-based agent models. This course then considers applications of the transactional paradigm for distributed agent systems, distributed knowledge systems, and multimedia databases.

## ZITE8110

### Decision Support Systems

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr R Sarker

This course addresses the principles and practice of decision support systems (DSS). Areas addressed are the design, development and applications of DSS: conceptual framework, cognitive styles, evaluating and using DSS, DSS architectures, data base management systems, model-base management systems, problem solving and decision-making tools, brainstorming, operations research tools, artificial intelligence techniques, dialogue generation and management software, man-machine interfaces, adaptive design approach, knowledge acquisition, applications and case studies.

## ZITE8111

### Directed Studies in Information Technology 1

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S1 distance, S1 on-campus, S2 on-campus, S2 distance

*Staff Contact:* Prof J Arnold

This reading course allows a student to carry out independent study, supervised by a member of staff, in an area of information technology not offered in any MSc(IT) course. Details for the reading course will be defined and approved individually for each student, and will include objectives, assessment, and an initial reading list.

## ZITE8112

### Directed Studies in Information Technology 2

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S1 distance, S1 on-campus, S2 distance, S2 on-campus

*Staff Contact:* Prof J Arnold

This reading course allows a student to carry out independent study, supervised by a member of staff, in an area of information technology not offered in any MSc(IT) course. Details for the reading course will be defined and approved individually for each student, and will include objectives, assessment, and an initial reading list.

## ZITE8114

### Electronic Business

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 on-campus, S2 distance

*Staff Contact:* Prof J Arnold

This course provides students with an overview of the technological and managerial issues associated with electronic business (e-business). The different categories of e-business transactions are examined together with the technologies and applications that underpin them. Aspects of the strategic and legal environments in which e-business applications are implemented are also examined.

## ZITE8115

### Information Operations

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 distance, S1 on-campus

*Staff Contact:* Prof J Arnold

This course addresses the evolution of Information Operations (IO), from its roots in early warfare, through recent manifestations as Command and Control Warfare and Information Warfare, to its modern conception as a strategy for conflict and competition in the information age. The course focuses on the present day formulation of IO as a broad range of military and non-military activities intended to achieve information and decision superiority. The course complements related studies in command and control, decision support, information management and knowledge management.

## ZITE8116

### Information Systems Policy and Strategy

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 distance, S2 on-campus

*Staff Contact:* Prof J Arnold

This course presents a framework and structured method for developing strategies and policies that will support the organisation within which they are developed. Based on fundamental information management principles and directly addressing the risks within the organisation, the method presented provides guidance without constraining the user to a particular result. The course aims to develop the strategic and policy capabilities of the students in a particular manner.

**ZITE8117****Integrating Information Systems Technologies**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 distance, S1 on-campus

*Staff Contact:* Prof J Arnold

This course presents an analysis of an integrated technical architecture (hardware, software, networks, and data) to serve organisational needs in a rapidly changing competitive and technological environment. Technologies for intra- and inter- organisational systems are investigated.

**ZITE8118****Integrating the Enterprise and IS Functions**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 distance, S2 on-campus

*Staff Contact:* Prof J Arnold

*Assumed Knowledge:* ZITE8138 or equivalent,  
ZITE8116 or equivalent

It is recommended that students attempt this course towards the end of their study. This capstone course is intended to round off and integrate the knowledge gained in other IS management courses. It covers: IS's role in transforming organisations and industries; an integrated view of the organisation from an external and internal perspective; operational vs. governance responsibilities of the CIO; IS's internal role in integrating the enterprise through cohesive business processes and functional applications to meet business needs; enterprise resource planning and enterprise functionality; coordinating skills and organisational infrastructure; the role of human capital; current/emerging issues in managing the day-to-day operations of the IS function; external relations with suppliers, outsourcers, customers; collaborative business strategies.

**ZITE8119****Internetworking**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

*Assumed Knowledge:* ZITE7101 or equivalent and  
ZITE7104 or equivalent

This course aims to further the student's knowledge of Internetworking with TCP/IP. In particular, it examines advanced IP addressing, routing with advanced routing protocols and network security.

**ZITE8120****IT Special Topic 1**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

Occasional topics of relevance in the area of Information Technology, given by visitors or external lecturers or members of staff.

**ZITE8121****IT Special Topic 2**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

Occasional topics of relevance in the area of Information Technology, given by visitors or external lecturers or members of staff.

**ZITE8122****IT Special Topic 3**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S2 on-campus

*Staff Contact:* Prof J Arnold

Occasional topics of relevance in the area of Information Technology, given by visitors or external lecturers or members of staff.

**ZITE8123****IT Special Topic 4**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S2 on-campus

*Staff Contact:* Prof J Arnold

Occasional topics of relevance in the area of Information Technology, given by visitors or external lecturers or members of staff.

## ZITE8126

### Languages of the Web

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr D Cornforth

The core current and future web standards: their history and motivation, potential evolution paths. Encoding information: generic markup languages, specific markup languages. Linking information: linkage mechanisms. Transforming information: transformation languages. Presenting information: presentation languages. Negotiating information: e-commerce standards. Finding information: metadata standards, search technologies, agent technologies. Theoretical and practical issues in the use and integration of web standards.

## ZITE8128

### Modern Heuristic Techniques

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

This course covers a number of new heuristic search techniques in operations research. These recent techniques have been proposed to deal with complex problems (such as scheduling, timetabling, and allocation) where traditional optimisation methods failed. The techniques are inspired by natural phenomena. No background in biology or neuroscience is required. The topics covered in this course include: evolutionary algorithms, simulated annealing, Tabu search, ant colony optimisation, marriage in honey bees optimisation, immune systems, and artificial neural networks. The applications cover both traditional problems such as propositional satisfiability and the travelling salesman, as well as real life applications.

## ZITE8129

### Multimedia and Virtual Environments

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

Multimedia and Virtual Environments from a programmers perspective. Types of Media: 2D imagery, 3D graphics, Text, Video, Sound and Animation. Principles of media types. Issues in control of media: bandwidth, processing. Standards. Combining and synchronising media. Virtual environments: models, immersion, technology. Practical work in Java and the Java Media APIs (JMF, Java3D, JAI) plus VRML.

## ZITE8130

### Network Management and Troubleshooting

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

*Assumed Knowledge:* ZITE7101 or equivalent and ZITE7104 or equivalent

This course provides in insight into the techniques and methodologies of network design and management. Network design tools and techniques, management and troubleshooting tools, identifying troubleshooting targets, documenting symptoms, actions and results, diagnosing and correcting TCP/IP problems, diagnosing and correcting wide area networking problems.

## ZITE8131

### Object Oriented Analysis and Design

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

*Assumed Knowledge:* ZITE7103 or equivalent and ZITE7106 or equivalent

This course addresses the object-oriented approach to information system development, particularly in reference to the earlier stages of analysis and design. It covers the principles and basic concepts of object orientation and the different aspects of OO modelling (eg static/functional/state) as represented by the Unified Modelling Language (UML) technique. Experience in using and designing with a typical UML-based CASE tool forms an important part of the course.

## ZITE8132

### Object Oriented Programming

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 distance, S1 on-campus

*Staff Contact:* Dr C Lokan

*Assumed Knowledge:* ZITE7103 or equivalent

This course emphasises the data abstraction and encapsulation techniques that introduce object orientation, using the C++ programming language. Examples concentrate on the class construct, and explore function and operator overloading, scope, object constructors and destructors, the this pointer, the friend concept, file input/output streams, operator concatenation using reference arguments, templates. Class derivation and inheritance, polymorphism.

**ZITE8133****Operating Systems**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr W Zhu*Assumed Knowledge:* ZITE7103 or equivalent

This course investigates the design, implementation, operation and management of computer operating systems. Areas covered are: history of Operating Systems, processes, pre-emption and scheduling, Input / Output, memory management, Virtual Memory Management, file systems, interprocess communication and synchronisation, OS security.

**ZITE8134****Software Architectures**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

The course seeks to provide students with a strong practical understanding of software architectures. The design, evolution and quality evaluation of a software architecture is also presented. Other topics discussed include: architectural styles, and architectural recovery and reuse.

**ZITE8135****Software Engineering and ADA**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold*Assumed Knowledge:* ZITE7103 or equivalent

This course introduces the programming language ADA. Advanced functions and procedures. Parameter passing in, out, in out. Problem solving through modularisation. ADA packages. The concept of information hiding. Topdown and bottom-up development and testing. Private declarations. Problem solving by abstraction. Private data types and user-defined operation. Problem solving in real-time systems, tasks, inter-task communication, task synchronisation.

**ZITE8136****Software Project Management**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 distance, S2 on-campus

*Staff Contact:* Mr G Millar

*Exclusion/s:* Not available to students who have completed ZITE8216

This course introduces students to the basic concepts of software project management. An overview of software life cycle processes is provided. This is followed by an examination of several key life cycle processes and activities, including: software development, risk management, software measurement, verification, validation, and quality assurance.

**ZITE8137****Systems and Network Administration**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

This course introduces students to the skills, methodologies and activities required to administer a computer system which consists of various hardware, software and users within an organisational infrastructure. In particular, students will be introduced to ethics, user, device, file system administration, computer and network security, system monitoring, performance tuning, administrative support tools, network, server and client administration. Students should possess a good working knowledge of UNIX.

**ZITE8138****Systems Planning**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 on-campus, S2 distance

*Staff Contact:* Mr M Ford

This course will help students to plan so that Information and Communication Technology (ICT) services are used wisely in their organisation. The students will know the principles of systems planning, procedures to put the principles into practice in preparing a Business Case, some supporting software tools. They will become aware of the theory underlying the development of the procedures.

Topics include: work systems, systems theory, ICT evaluation theory and practice, risk management; use of the risk-remedy technique and the Analysis network Linked (AnnL) software.

**ZITE8139****Telecommunications Design and Management**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

*Assumed Knowledge:* ZITE7101 or equivalent and ZITE7104 or equivalent.

This course reviews current telecommunications technology and current issues facing telecommunications manager. These include service bundling, pricing and charging of services, private and public network services, deregulation, managing and designing interoperable systems, network planning and management issues, and globalisation.

**ZITE8140****User Interface Construction**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold*Assumed knowledge:* ZITE7103 or equivalent

This course presents the principles and practical aspects of designing, implementing and evaluating user interfaces. Topics include: interfaces in web documents and in a client-server architecture; criteria for judging interfaces; information presentation techniques; programming to respond to and control interfaces; Java, CGI, X-widgets, command languages.

**ZITE8141****WAN Technologies**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 on-campus

*Staff Contact:* Prof J Arnold*Assumed Knowledge:* ZITE7101 or equivalent and ZITE7104 or equivalent

This course aims to further the student's knowledge of wide area networks. Students will be introduced to current wide area networks technologies and will investigate how these technologies may be used to build practical wide area networks in the Australian environment.

**ZITE8142****Web Design**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold*Assumed Knowledge:* ZITE7105 or equivalent

This course provides an introduction to a number of areas critical to the design of successful websites. The aim is to provide the student with the critical capacity to judge good design, and the beginnings of the capability of creating it. Topics may include: principles of graphic design, principles of typography, principles of user interface design and construction, usability and accessibility issues, principles of website organisation, logical design, navigational design.

**ZITE8143****Distributed Applications**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

A course on the development and management of distributed applications, such as web and database applications, with an emphasis on performance and reliability needs. Topics covered will include: introduction to distributed applications, clients and servers, distribution paradigms, designing programming and configuring distributed applications with databases, XML, distributed objects, agents, ubiquitous computing.

**ZITE8144****Information and Communication Technology Processes**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 on-campus

*Staff Contact:* Mr G Millar

Information and Communication Technology (ICT) has become increasingly vital for creating and delivering organisational value. This course aims to familiarise students with the processes required to manage ICT resources. Topics include: the role of the CIO, the IT organisation, IT processes, IT sourcing, and process improvement. This course will examine major initiatives in this area, including Information Infrastructure Library (ITIL) and Control Objectives for Information and related Technology (COBIT).

**ZITE8145****Soft Computing**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* A/Prof H Abbass

Soft computing is a paradigm shift in computer science representing the state-of-the-art approaches to making computers smart and able to find and handle knowledge efficiently. This subject will expose students to different methods and techniques with on-hand programming exercises and providing students with practical experience on a number of software packages. Students will use Prolog and Perl to manipulate knowledge and texts for knowledge management and web mining. They will be exposed to cutting-edge areas such as evolutionary computation, multi-agent systems, neural networks, and machine learning. The course will also expose students to real life use of these techniques in web mining, e-commerce, and knowledge management. Examples will be drawn from many real life situations including, but not limited to, business, banking sectors, medical databases, command and control, and wargaming.

**ZITE8199****Project - Information Technology**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC12

S1 distance, S1 on-campus, S2 distance, S2 on-campus

*Staff Contact:* Prof J Arnold

A supervised project carried out in consultation with an appropriate member of the School. Topics for projects will be elicited from staff of the School, Government departments, local organisations, and the students themselves. Topics will be chosen in consultation with staff of the School.

**ZITE8201****Adaptive Antenna Arrays**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

A selection of topics from: introduction to optimal array processing, array signal representation, narrowband and broadband processor structures, element space and beamspace processing in time domain as well as in frequency domain, adaptive algorithms, spatial spectral analysis.

**ZITE8202****Advanced Data Networks**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

Topological design of data networks; public data protocols, X.25; local area networks, ethernet; design of a local area network; metropolitan area networks, DQDB; fibre distributed data interface; point to point protocol; Broadband ISDN concepts and protocols, switching, loss mechanisms; performance of a data network.

**ZITE8203****Advanced Digital Signal Processing Techniques**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

Review of basic theory: discrete time signals and systems, Fourier theory and related theorems, sampling, multi-rate sampling and reconstruction, quantisation, time/frequency resolution, Z transform and related theorems, Laplace transform.

Topics selected from: signal analysis, one-dimensional filter structure design (FIR, IIR, ARMA) with implementation on DSP hardware (processing in real-time), multi-rate structures, introduction to two-dimensional structures including array filters and beamformers, introduction to Kalman filtering, introduction to signal estimation, finite precision arithmetic effects.

**ZITE8204****Airborne Radar**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 on-campus

*Staff Contact:* Assoc Prof L Godara

Detection and ranging: pulsed operation, the range equation, detection probability, pulse compression, FM ranging. Doppler information: spectrum of pulse train, ambiguities, the ambiguity function, digital filters, measuring range rate. Ground return: sources of ground return, clutter and target spectra, clutter and target spectra, clutter with range and Doppler ambiguities, choice of PRF. Categories of PRF: low PRF, high PRF, medium PRF. Tracking: angle tracking, range tracking, Doppler tracking, filtering. High resolution mapping: resolution requirements, synthetic array radar, SAR design, ISAR and Doppler beam sharpening.

**ZITE8205****Antennas**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

A selection of topics from: a review of basic wire, aperture, surface wave, wide band and frequency independent antennas; conformal and adaptive arrays; tolerance theory.

**ZITE8206****Digital Communications**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 on-campus

*Staff Contact:* Prof J Arnold

Review of mathematics of communication theory, analogue to digital and digital to analogue conversion, source encoding, baseband digital transmission, digital modulation techniques (ASK, FSK, PSK), coherent and incoherent detection, performance comparisons, synchronisation and timing extraction, channel coding, error correction and error detection, linear block codes (Hamming, Golay, BCH and RS), convolutional encoding and Viterbi decoding, link analysis.



## ZITE8208

### Digital Video Communications

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

Numerical representation of visual information, Huffman, run length and arithmetic coding techniques, pulse code modulation, distortion measures, intra and interframe predictive coders, motion estimation and compensation schemes, delta modulation and derivatives, transform encoding, hybrid techniques, subband, vector quantization and quadtree schemes, video coding standards, network issues and error resilience.

## ZITE8209

### Electrical Engineering Elective

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

An occasional elective on an electrical engineering topic, selected according to the specific expertise and experience of visitors to the School of Electrical Engineering.

## ZITE8213

### Mobile Communications

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

A selection of topics from an introduction to the concepts of mobile communications, fundamentals of multiple access schemes and channel allocation methods; description of various system configurations; understanding of mobile radio environment, propagation conditions, co-channel interference and design parameters; methods of capacity improvement, outage probability and handoff reduction; performance analysis.

## ZITE8214

### Neural Networks

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

Introduction to artificial neural networks, historical development and comparison with natural neural networks; the artificial neuron or processing element as a correlator; multi-layer networks and the role of a nonlinear activation function; multilayer perceptron with back-propagation training; gradient-descent versus higher-order training; radial basis function networks; matrix associative

memory; Hopfield net as associative memory; competitive learning networks; Carpenter and Grossberg Adaptive Resonance Theory; Kohonen self-organising feature map; applications of neural networks in signal processing, image processing and machine vision, including associative memory, supervised and unsupervised classifiers and pattern recognition.

## ZITE8215

### Principles of Modern Communications and Information Systems

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

This course provides an overview of the principles of modern communications and information systems. Course content includes fundamentals of digital and analogue signals, modulation, multiplexing, transmitters and receivers, transmission lines, radio wave propagation, antennas, types of communication systems, satellite communications, personal communications systems, networking, internetworking, the Internet, fundamentals of information systems, information management, software languages, databases and operating systems.

## ZITE8216

### Principles of Software Engineering

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 Intensive delivery (RAAF Retention Scheme only)

*Staff Contact:* Mr G Millar

*Exclusion/s:* Not available to students who have completed ZITE8136

This course provides an overview of the principles associated with software engineering. Topics include the software crisis, introduction to software development, software process models, risk management, computer-aided software engineering, software development capability and capability development models, software measurement (metrics), software quality assurance, software configuration management, verification and validation, test and evaluation, cost and schedule estimation, and software development standards.

## ZITE8217

### Principles of Surveillance Technologies

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

This course provides an overview of the theory and practice of the technologies and systems utilised in ground and airborne surveillance systems. Topics include an examination of the portions of the electromagnetic spectrum used for surveillance; optics fundamentals; image intensification techniques; thermal imaging; fundamentals of lasers and laser systems.

Participants will be introduced to the theory and practice of a broad range of radar systems including pulse radar, CW and CW/FM radar, pulse doppler and MTI radar and SAR. Radar EW will be covered using the traditional breakdown of Electronic Support, Electronic Protection and Electronic Attack.

**ZITE8218****Robotics**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

Classification of robots; dynamical models of a manipulator arm; flexible and rigid arms analysis; control of manipulator arm; design of adaptive controllers; mobile robots; self-learning intelligent robots.

**ZITE8219****Satellite Communications**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr M Ryan

Fundamentals of satellites, including; applications, orbits, propagation and link calculations, system hardware for space and ground segments, multiplexing and multiple access techniques, network design, and future trends. Fundamentals of signals and noise associated with satellite communications. Transmission concepts: calculate analogue transmission rates with respect to distortionless transmission, amplitude and delay distortions with equalisation, nonlinear distortion with companding, and carrier-to-noise ratio and signal-to-noise ratio; and calculate digital transmission rates with respect to line codes, intersymbol interference, pulse shaping and equalisation, bit energy-to-noise density and error probabilities.

**ZITE8220****Software Engineering**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

A laboratory-based course involving a number of software design and coding exercises that lead to a software project chosen by the student. Software engineering principles are taught through the use of a graphical object oriented programming tool called Prograph. The emphasis of the course is that of software design using appropriate class and inheritance within various re-useable software components.

**ZITE8221****Spaceborne Imaging Technology**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Dr X Jia

Planck's blackbody radiation law, atmospheric transmission and atmospheric windows. Wavelength ranges available for earth imaging and corresponding energy-matter interaction mechanisms. Detectors in the visible and reflective infrared regimes. Imaging spectrometry. Thermal detectors. Passive and active microwave sensing of earth surface features, including synthetic aperture radar methods. Spaceborne imaging systems including Landsat MSS and TM, Spot HRV, SIR A, B, C, ERS-1, JERS-1, Radarsat and aircraft systems. Image processing methods used in support of image interpretation.

**ZITE8222****Special Elective 1**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

An occasional elective given by a member of staff or external lecturers or visitors on a topic of immediate relevance. Alternatively a literature review of the technology in a specific area or a design project of appropriate intellectual and technical challenge may be undertaken.

**ZITE8223****Special Elective 2**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

An occasional elective given by a member of staff or external lecturers or visitors on a topic of immediate relevance. Alternatively a literature review of the technology in a specific area or a design project of appropriate intellectual and technical challenge may be undertaken.

**ZITE8224****Special Elective 3**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S2 on-campus

*Staff Contact:* Prof J Arnold

An occasional elective given by a member of staff or external lecturers or visitors on a topic of immediate relevance. Alternatively a literature review of the technology in a specific area or a design project of appropriate intellectual and technical challenge may be undertaken.

**ZITE8225****Special Elective 4**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S2 on-campus

*Staff Contact:* Prof J Arnold

An occasional elective given by a member of staff or external lecturers or visitors on a topic of immediate relevance. Alternatively a literature review of the technology in a specific area or a design project of appropriate intellectual and technical challenge may be undertaken.

**ZITE8226****Systems Engineering Practice**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 Intensive delivery (RAAF Retention Scheme only),

S2 on-campus, S2 distance

*Staff Contact:* Dr M Ryan

This course provides students with an overview of Systems Engineering theory including process, management, related disciplines and tools. A simulated design exercise allows students to apply Knowledge of Systems Engineering processes and management to real-life system development. Throughout the exercise, design reviews are conducted to evaluate progress and introduce realistic development issues.

**ZITE8227****Digital Image Processing and Enhancement**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Assoc Prof D Fraser

Digital image processing as 2D signal processing; the effect of sampling a 2D signal (and higher dimensional signals); the 2D and higher dimensional discrete Fourier and other transforms, including wavelet transform; filtering in spatial and spatial frequency domains; image registration and its use in many image

processing applications; 3D depth reconstruction using multiple views (stereo) and shape-from-shading; image warping and morphing; simple grey-level contrast enhancement and colour representation and display; imaging system response; concept of image degradation through convolution by point-spread function (PSF or impulse response); natural degradation due to defocus blur; motion blur and atmospheric turbulence; image restoration by deconvolution with position-invariant PSF; the importance and problem of signal noise; inverse filter and the Wiener filter; iterative image restoration; blind deconvolution; the need for additional information or constraints; speckle astronomy and phase restoration; the problem of position-dependent PSF; tomographic reconstruction; applications in medical imaging, security, law enforcement and astronomy.

**ZITE8228****Modern Signal Estimation and Filtering Techniques**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr V Ougrinovski

This course focuses on modern state-space filtering techniques and their applications. Topics include the fundamentals of discrete-time and continuous-time linear system modelling of random signals; state-space signal estimation; Kalman filtering and smoothing; the extended Kalman filter; introduction to advanced filtering techniques such as robust filtering and adaptive filtering; Matlab tools for state-space signal estimation and filtering; example applications from the following selection: channel equalisation, CDMA networks, estimation of wireless communication signals. The course offers a series of lectures and tutorials aimed at assisting students understand the idea and implementations of state-space filters. At the completion of the course students will have both theoretical knowledge and practical skills necessary to develop and implement modern signal estimation and filtering algorithms including the Kalman filter and the H-infinity filter.

**ZITE8299****Project Report - Electrical Engineering**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC12 HPW6

S1 on-campus, S2 on-campus

*Staff Contact:* Prof J Arnold

Research project plus report in approved form.

**ZITE8401****Analysis of Military Systems**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

This course will provide introductory instruction on the analysis of military combat systems. The course will cover the combat system chain of sensor, command and control and weapon systems. The sensors covered will include radar, sonar and electronic support and the analysis will include the general principles, propagation and clutter issues as well as target characteristics. The command and control functions covered will include tracking and decision support. The weapon system analysis will include general weapon kinematics, guidance schemes and terminal effects.

**ZITE8402****Concept Development, Experimentation & Wargaming**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 on-campus, S2 distance

*Staff Contact:* Prof J Arnold

This course will describe the role of Concept Development and Experimentation in Defence planning. It will introduce some of the tools used including scenario analysis, seminar wargaming and adjudicated wargaming. Issues covered in included the design of experiments, difficulties in using subject matter experts and the validation of experiments.

**ZITE8403****Decision Analysis**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 distance, S1 on-campus

*Staff Contact:* Dr R Sarker

The aim of this course is to expose students to various methods of structuring and analysing decision-making problems and demonstrate their use. The topics covered will include pay-off matrices, multifactor evaluation techniques, decision trees, AHP, influence diagrams, mindmaps and group decision making techniques.

**ZITE8404****Introduction to Defence Operations Research**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 distance

*Staff Contact:* Prof J Arnold

This course will describe the operations analysis process, data collection, validation of models, sensitivity analysis, and the applicability of models.

The areas of military and defence operations analysis such as search, detection and damage assessment, simulation and wargames, cost effectiveness and cost benefit analysis, linear and integer programming, heuristic optimisation, AHP and SMART technologies, combat models and threat assessment will be covered. The course will also address the validation of results from operations research tasks and the implementation difficulties. The present process of tasking OR agencies and the management of tasks will be outlined.

**ZITE8405****Optimisation Techniques**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

The aim of this course is to expose students to various deterministic optimisation tools and techniques. The course generally covers topics such as: an overview of mathematical modelling, linear programming, integer programming, network techniques, goal programming and multi-objective approaches, large-scale optimisation systems, mathematical programming languages and other optimisation software, and case studies in both defence and non-defence environments.

**ZITE8406****OR Special Topic 1**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

Occasional topics of relevance in the areas of Operations Research and/or Statistics, given by visitors or external lecturers or members of staff.

**ZITE8407****OR Special Topic 2**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

Occasional topics of relevance in the areas of Operations Research and/or Statistics, given by visitors or external lecturers or members of staff.

**ZITE8408****OR Special Topic 3**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S2 on-campus

*Staff Contact:* Prof J Arnold

Occasional topics of relevance in the areas of Operations Research and/or Statistics, given by visitors or external lecturers or members of staff.

**ZITE8409****OR Special Topic 4**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC6 HPW3

S2 on-campus

*Staff Contact:* Prof J Arnold

Occasional topics of relevance in the areas of Operations Research and/or Statistics, given by visitors or external lecturers or members of staff.

**ZITE8410****Soft Systems Methodologies**

UC Information Technology and Electrical Eng

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Prof J Arnold

Systems methodologies referred to as soft, focus on a paradigm of learning and gaining knowledge about systems rather than being primarily based on a paradigm of optimisation. This course will introduce key concepts of systems thinking and systems practice which are particularly suited to strategic decision making. It will include Checkland's Soft Systems Methodology as well as Influence Diagrams and Cognitive Mapping. Guidelines will be developed and provided to assist the choice of the appropriate Soft Systems Methodologies for different problem situations and the student will gain proficiency in these methodologies by the completion of a number of projects as well as by participation in class tutorials.

**ZITE8411****Warfare Modelling and Analysis**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus, S1 distance

*Staff Contact:* Prof J Arnold

This course will introduce students to some of the concepts and techniques in analysing warfare. It will cover the simulation of warfare, including manoeuvre, detection, attrition and command control.

A range of techniques and approaches to the analysis of warfare will be described, including the use of mathematical modelling techniques particularly Lanchester models, the use of wargames and of computer combat models including agent-based approaches. The course will also cover measures of effectiveness and the role of the environment.

**ZITE8498****Defence Operations Research Report Full Time**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC24

S1 distance, S1 on-campus, S2 distance, S2 on-campus

*Staff Contact:* Prof J Arnold

Full time study on a research project of relevance to the Defence Operations Research program, plus report in approved form.

**ZITE8499****Defence Operations Research Report Part Time**

UC Information Technology and Electrical Eng

UOC12

S1 distance, S1 on-campus, S2 distance, S2 on-campus

*Staff Contact:* Prof J Arnold

Part time study in a research project of relevance to the Defence Operations Research program, plus report in approved form.

**ZITE8901****Case Studies in Information Technology**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Prof J Arnold

This course offers perspectives on information technology through case studies. The case studies address issues that are covered more generally in other courses within the Information Technology degrees. The course is designed to raise awareness of generic questions at the level of particular cases, and to illustrate general principles through specific experience. There will be an emphasis on in-class participation and on real workplace situations.

**ZITE8902****Professional Practices**

UC Information Technology and Electrical Eng

UOC6 HPW3

S2 on-campus

*Staff Contact:* Mr T Turner

This course will help students to know how to carry out the tasks of a member of the Information and Communication Technology (ICT) discipline in a professional manner.

The students will know how to find the most useful sources of information to build upon their knowledge of the discipline; follow the ethics of the discipline; meet the needs of the client for the acceptable and efficient use of ICT services; understand the practical concerns of managing contracts, projects, and risks; and present results of their work in terms understandable to business managers.

**ZITE8903****Research Methods in Information Technology**

UC Information Technology and Electrical Eng

UOC6 HPW3

S1 on-campus

*Staff Contact:* Dr F Clermont

This course aims to provide students undertaking research with an understanding of basic frameworks in research. The course covers research techniques for gathering information, developing a research proposal and evaluating research carried out by others.

Major areas include scientific and interpretivist approaches, design, survey methods and instruments, case study, field study, experimentation, data collection and analysis. The principal skills imparted are in carrying out the research processes, and in the written and oral presentation of results.

**ZITE8998****DIT Dissertation (F/T)**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC24

S1 on-campus, S2 on-campus

*Staff Contact:* Prof J Arnold

Research component of the Doctor of Information Technology degree.

**ZITE8999****DIT Dissertation (P/T)**

UC Information Technology and Electrical Eng

Enrolment requires School approval

UOC12

S1 on-campus, S2 on-campus

*Staff Contact:* Prof J Arnold

Research component of the Doctor of Information Technology degree.

## SCHOOL OF PHYSICAL, ENVIRONMENTAL AND MATHEMATICAL SCIENCES

**ZPEM7301****Introduction to Data Analysis**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW3

S2 distance, S2 on-campus

*Staff Contact:* Mrs B Catchpole

The course provides a foundation for further studies in statistics, management or any other area requiring some proficiency in data analysis. It gives an introduction to data analysis, with emphasis on the analysis of experiments. It teaches the principle of good experimental design, and focuses on a project where you design and analyse your own experiment. The course introduces a simple statistical computer package that is used for data exploration and presentation, and the analysis of data from simple experimental and observational studies.

**ZPEM8202****Principles of Geographic Information Analysis and Remote Sensing**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW4

NOT OFFERED IN 2006

*Staff Contact:* Dr I Takken

This course deals with the concepts and principles of remote sensing and geographic information analysis. The course is designed to provide students from diverse backgrounds with a theoretical basis in spatial phenomena and an understanding of data processing and analysis techniques. Topics include data acquisition, digital image processing, database design, spatial analysis and visualization. The course will be taught in both lectures and practical exercises. In a final project, students will integrate remote sensing and GIS technologies in a practical application. At the end of the course students will have an understanding of how to select or acquire appropriate spatial data and will be able to perform basic digital image processing and spatial analysis tasks.

**ZPEM8203****Applications in Remote Sensing**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Dr A Griffin

*Prerequisite/s:* ZPEM8202

This course is concerned with the evaluation of environmental conditions and natural resources through assessment and analysis techniques using remote sensing technologies. We will focus on the theory of optical, hyperspectral, thermal and microwave radiation, and will consider applications of remote sensing to natural

resources and environmental management; biophysical and ecological indicators of environmental health; field survey design and analysis; and resource and environmental evaluation principles. This course will consist of lectures, seminar discussions and practical exercises. Lectures may also include invited speakers from military, government, and private business.

#### **ZPEM8204**

##### **Strategic Geographical Issues in Australia's Neighbourhood**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Dr G Banks

This course is concerned with the geographical context underlying contemporary strategic issues in the Australian neighbourhood. It begins by addressing the implications of such matters as the pattern of landforms, oceans and islands within Australia's strategic sphere and the dynamics and diversity of terrain form and land cover.

The course then takes in a range of contemporary geographical issues including urbanisation, poverty and rural development in SE Asia, resource development and management, the current and potential impact of regional environmental issues, and migration. The course will include discussion of broad issues and specific case studies at a range of geographical scales and through a diversity of geographical approaches.

#### **ZPEM8206**

##### **Applications in Geographic Information Analysis**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW3

S2 intensive delivery (August 14-18, 2006)

*Staff Contact:* Dr A Griffin

*Prerequisite/s:* ZPEM8202

Building from Principles of Geographic Information Analysis and Remote Sensing, this course explores the development of GIS applications, extending principles and techniques to build practical applications. Lectures and lab projects may cover topics such as spatial pattern analysis, modelling of both spatially and temporally dynamic and/or stochastic systems, routing methods, data distortion, fuzzy representations, and the consideration of error and uncertainty. Lectures may also include invited speakers from military, government, and private business.

#### **ZPEM8301**

##### **Statistical Trials Analysis**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* Dr W Anderson

This course teaches the principles of good experimental design-maximizing precision, blocking, selecting sample size, sensitivity and efficiency.

Emphasis throughout is on understanding concepts and analysing practical data using a modern statistical computer package. Topics include: randomised blocks, Latin squares and factorial designs; analysis of variance and multiple comparisons; fixed and random effects models; repeated measures designs.

#### **ZPEM8304**

##### **Statistical Forecasting**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW3

S2 on-campus, S2 distance

*Staff Contact:* Dr W Anderson

Companies make forecasts of economic growth when they plan expansion and diversification. The Defence Force makes forecasts when it decides how many weapons to stockpile, and how many new recruits to accept.

This course teaches techniques for forecasting in the short and long term, calculation of uncertainty limits on the forecasts, and tests of how good a forecasting technique has been on past data. Techniques studied include time-series decomposition, exponential smoothing methods, regression, Box-Jenkins methodology. Students will have an opportunity to practise the techniques on their own chosen set of data.

#### **ZPEM8307**

##### **Financial Mathematics**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW3

S1 on-campus, S1 distance

*Staff Contact:* Dr M Collins

Financial mathematics is primarily concerned with the pricing of products known as "financial derivatives" and is currently one of the most active areas of applied mathematics. Derivatives are products whose value is derived from the value of an underlying asset such as stock, an ounce of gold or a foreign currency. This course introduces various financial products such as bonds, bills and stocks as well as financial derivatives-futures and options. We examine how these products are priced and traded. We also examine how "arbitrage" (certain profit) opportunities can arise. Part of the course involves following the progress of a portfolio of ASX stocks and bonds.

**ZPEM8308****Reliability and Maintainability**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW3

Intensive delivery (July 2006)

*Staff Contact:* Dr J Chapman

The objectives of this course are: to develop familiarity with the probabilistic and statistical techniques needed in survival analysis; to develop familiarity with the various mathematical models for survival; to develop skills in modelling reliability data using a modern statistical language, and the ability to rapidly transport these skills into any other high-level language; to learn how to model the survival of complex systems containing many components; to study repairable and maintainable systems, and to perform cost-benefit analyses of competing management strategies; to appreciate the applicability of all of the above to military situations.

**ZPEM8501****Weapons Assessment**

UC Physical, Environmental and Mathematical Sciences

UOC6 HPW3

NOT OFFERED IN 2006

*Staff Contact:* A/Prof D Isbister

*Prerequisite/s:* Enrolment in program 5841 or 8559

The aim of this course is to study the performance of weapons. Topics that will be covered include measure of effectiveness, dispersion of fire, assessment of direct and indirect fire, data acquisition and carpet graphs and response surfaces.



# POSTGRADUATE RESEARCH INFORMATION

## General Information

UNSW@ADFA is a research-intensive institution which offers a supportive and stimulating environment for postgraduate research. It has a wide range of postgraduate research programs open to all eligible students and particularly welcomes international students. Academic staff work closely with industry, commerce and public research bodies in Australia and overseas to ensure that our programs remain relevant in an ever changing environment. More than 300 staff and students on campus are engaged in research: 170 academic staff, supported by 30 specialist research staff and 120 research students. Research at UNSW@ADFA is recognised by its publications output and the significant external research funding attracted each year. In 2004, it was ranked by Thomson ISI (the International Citation Agency) in the top 1% in Engineering based on citations of publications in the period 1998-2002.

Research degree programs can be undertaken in all five Schools. Information about School research interests and possible supervisors is available from the UNSW postgraduate webpage [www.postgradresearch.unsw.edu.au](http://www.postgradresearch.unsw.edu.au) and individual School webpages. Research programs are open to all eligible students, including those from overseas, and there is a range of financial support available on application, including scholarships which cover fees only, stipend only (in the form of a living allowance), or in certain cases, fees and stipend. Information about these is available at [www.unsw.adfa.edu.au/student/scholarships](http://www.unsw.adfa.edu.au/student/scholarships)

Research degrees require the preparation and submission of a thesis embodying the results of an original investigation or design or, in the case of the Masters by Research, a combination of research and coursework or research only. Research programs are available at PhD and Masters level with provision, under certain circumstances, for transfer between the two. Opportunities for PhD and Masters by Research study range across the humanities, science and engineering disciplines.

# SUMMARY TABLE OF PROGRAMS

## Postgraduate Research Degrees

Degree	Discipline	Program code
PhD	Aerospace and Mechanical Engineering	
	Aerospace	1663
	Mechanical	1661
	Business	1541
	Chemistry	1871
	Civil Engineering	1631
	Computer Science	1885
	Electrical Engineering	1643
	English	1201
	Geography and Oceanography	1081
	History	1241
	Indonesian	1201
	Mathematics and Statistics	1881
	Physics	1892
	Politics	1321
MPhil	Inter-disciplinary	
	ACME	2227
	SOB	2226
	HASS	2225
	ITEE	2228
MA	PEMS	2229
	Inter-disciplinary	2405
	Business	
	English	
	Geography	
MA(Hons)	History	
	Politics	
	Inter-disciplinary (only available to continuing students)	2281
	Aerospace Engineering	2693
	Civil Engineering	2651
ME	Electrical Engineering	2663
	Mechanical Engineering	2691
	Chemistry	2911
	Computer Science	2925
	Geography and Oceanography	2041
MSc	Mathematics and Statistics	2921
	Physics	2931

## Course Identifiers for Research Degrees

The research degrees listed below have been allocated a course identifier which includes a School alphabetic prefix and a four digit suffix, for example: '9000' (full time) and '9001' (part time).

Discipline	Course Code
Aerospace/ Mechanical Engineering	ZACM 9000/9001
Chemistry	ZPEM 9100/9101
Civil Engineering	ZACM 9000/9001
Computer Science	ZITE 9100/9101
Economics and Management	ZBUS 9000/9001
Electrical Engineering	ZITE 9200/9201
Geography	ZPEM 9201/9202
Oceanography	ZPEM 9401/9402
History	ZHSS 9200/9201
English	ZHSS 9100/9101
Mathematics and Statistics	ZPEM 9301/9302
Physics	ZPEM 9500/9501
Politics	ZHSS 9501/9502

## PROGRAM INFORMATION

### Doctor of Philosophy (PhD) – multiple codes

#### Program Summary:

**Faculty:** UNSW@ADFA

**School/s:** School of Aerospace; Civil and Mechanical Engineering; School of Business; School of Humanities and Social Sciences; School of Information Technology and Electrical Engineering; School of Physical, Environmental and Mathematical Sciences

**Campus:** ADFA

**Award/s:** Doctor of Philosophy (PhD)  
[Aerospace Engineering (1663); Mechanical Engineering (1661); Business (Economics and Management) (1541); Chemistry (1871); Civil Engineering (1631); Computer Science (1885); Electrical Engineering (1643); Geography and Oceanography (1081); History (1241); English (1201); Indonesian (1201); Mathematics and Statistics (1881); Physics (1892); Politics (1321)]

**Career:** Research

**Duration:** Three years full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 144UOC

#### Program Description:

The Doctoral degree is formal recognition of successful research experience. The candidate must make a distinct and original contribution to knowledge. Considerably more original work is required for a Doctorate than for a Masters research degree. The nature and level of supervision will evolve over the duration of the candidature. The work will be more closely supervised in the early stages. In the later stages, however, the candidate must be allowed increasing scope to exercise initiatives and demonstrate originality. In the latter part of the program the candidate should be able to work alone and be guided rather than directed by the supervisor. The degree of Doctor of Philosophy requires a minimum of three years full-time study and preparation of a thesis. The length of a doctoral thesis normally should not exceed 100,000 words of text.

#### Academic Rules:

1. The degree of Doctor of Philosophy may be awarded by the Council on the recommendation of the Research Committee of the University College (hereinafter referred to as the Committee) to a candidate who has made an original and significant contribution to knowledge.

#### Qualifications

2. (1) A candidate for the degree shall have been awarded an appropriate degree of Bachelor with Honours from The University of New South Wales or a qualification considered equivalent from another university or tertiary institution at a level acceptable to the Committee.
- (2) In exceptional cases an applicant who submits evidence of such other academic and professional qualifications as may be approved by the Committee may be permitted to enrol for the degree.
- (3) If the Committee is not satisfied with the qualifications submitted by an applicant the Committee may require the applicant to undergo such assessment or carry out such work as the Committee may prescribe, before permitting enrolment as a candidate for the degree.

#### Enrolment

3. (1) An application to enrol as a candidate for the degree shall be lodged with Student Administrative Services at least one calendar month before the commencement of the session in which enrolment is to begin or, where applicable, by the advertised closing date.
- (2) In every case before making the offer of a place the Committee shall be satisfied that agreement has been reached between the School and the applicant on the topic area, supervision arrangements, provision of adequate facilities and any coursework to be prescribed and that these are in accordance with the provisions of the guidelines for promoting postgraduate study within the University.
- (3) An approved candidate shall be enrolled either as a full-time or a part-time student.

- (4) A full-time candidate will present the thesis for examination no earlier than three years and no later than five years from the date of enrolment; a part-time candidate will present the thesis for examination no earlier than four years and no later than six years from the date of enrolment, except with the approval of the Committee.
- (5) The candidate may undertake the research as an internal student i.e. at a campus, teaching hospital, or other research facility with which the University is associated, or as an external student not in attendance at the University except for periods as may be prescribed by the Committee.
- (6) An internal candidate will normally carry out the research on a campus or at a teaching or research facility of the University except that the Committee may permit a candidate to spend a period in the field, within another institution or elsewhere away from the University provided that the work can be supervised in a manner satisfactory to the Committee. In such instances the Committee shall be satisfied that the location and period of time away from the University are necessary to the research program.
- (7) The research shall be supervised by a supervisor and where possible a co-supervisor who are members of the academic staff of the School or under other appropriate supervision arrangements approved by the Committee. Normally an external candidate within another organisation or institution will have a co-supervisor at that institution.

### Progression

4. The progress of the candidate shall be considered by the Committee following report from the School in accordance with the procedures established within the School and previously noted by the Committee.
  - (i) The research proposal will be reviewed as soon as feasible after enrolment. For a full-time student this will normally be during the second year of study, or immediately following a period of prescribed coursework. This review will focus on the viability of the research proposal.
  - (ii) Progress in the course will be reviewed within twelve months of the first review. As a result of either review the Committee may cancel enrolment or take such other action as it considers appropriate. Thereafter, the progress of the candidate will be reviewed annually.

### Thesis

5. (1) On completing the program of study a candidate shall submit a thesis embodying the results of the investigation.
- (2) The candidate shall give in writing to Student Administrative Services two months' notice of intention to submit the thesis.

- (3) The thesis shall comply with the following requirements:
  - (a) it must be an original and significant contribution to knowledge of the subject;
  - (b) the greater proportion of the work described must have been completed subsequent to enrolment for the degree;
  - (c) it must be written in English except that a candidate in the Faculty of Arts and Social Sciences may be required by the Committee to write a thesis in an appropriate foreign language;
  - (d) it must reach a satisfactory standard of expression and presentation;
  - (e) it must consist of an account of the candidate's own research but in special cases work done conjointly with other persons may be accepted provided the Committee is satisfied about the extent of the candidate's part in the joint research.
- (4) The candidate may not submit as the main content of the thesis any work or material which has previously been submitted for a university degree or other similar award but may submit any work previously published whether or not such work is related to the thesis.
- (5) Four copies of the thesis shall be presented in a form which complies with the requirements of the University for the preparation and submission of theses for higher degrees. (See later entry in this section.)
- (6) It shall be understood that the University has the right to retain the four copies of the thesis submitted for examination and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the *Copyright Act, 1968*, the University may issue the thesis in whole or in part, in photostat or microfilm or other copying medium.

### Examination

6. (1) There shall be no fewer than three examiners of the thesis, appointed by the Committee, at least two of whom shall be external to the University.
- (2) At the conclusion of the examination each examiner shall submit to the Committee a concise report on the thesis and shall recommend to the Committee one of the following:
  - (a) the thesis merits the award of the degree.
  - (b) the thesis merits the award of the degree subject to minor corrections as listed being made to the satisfaction of the Head of School.
  - (c) the thesis requires further work on matters detailed in my report. Should performance in this further work be to the satisfaction of the Research Committee, the thesis would merit the award of the degree.

- (d) the thesis does not merit the award of the degree in its present form and further work as described in my report is required. The revised thesis should be subject to re-examination.
  - (e) the thesis does not merit the award of the degree and does not demonstrate that resubmission would be likely to achieve that merit.
- (3) if the performance in the further work recommended under (2)(c) above is not to the satisfaction of the Committee, the Committee may permit the candidate to submit the thesis for re-examination as determined by the Committee within a period determined by it but not exceeding eighteen months.
- (4) after consideration of the examiners' reports and the results of any further examination of the thesis, the Committee may require the candidate to submit to written or oral examination before recommending whether or not the candidate be awarded the degree. If it is decided that the candidate not be awarded the degree the Committee shall determine whether or not the candidate be permitted to resubmit the thesis after a further period of study and/or research.

### Fees

7. A candidate shall pay such fees as may be determined from time to time by the Council.

Following examination and before graduation, a final hard-bound copy of the thesis is to be provided for lodgment by Student Administrative Services in the Academy Library.

### Length of Theses

The length of a doctoral thesis normally should not exceed 100,000 words of text and that of a masters research thesis 75,000.

## Preparation and Submission of Project Reports and Theses for Higher Degrees

*Please note that a guide on the process for submission of theses for higher degrees is accessible on the Student Gateway. The guide details the processes for submission, revisions and re-examination and contains advice regarding the forms required for submission of a thesis.*

The following rules outline the **requirements** for project report and thesis submission for higher degrees.

Candidates are required to give two months' notice, in writing, of the expected date on which the thesis will be submitted.

1. Every candidate for the degree of Master by Research is required to submit 2 paper copies of the thesis for examination to the Research and Research Training Office. Every candidate for the degree of Doctor is required to submit 3 paper copies of the thesis for examination.

These may be submitted in temporary binding such that the thesis can be forwarded to examiners without the possibility of disarrangement. This temporary binding shall preferably be in spiral-bound format. Theses stapled or presented in a ring-binder folder will not be accepted. At the completion of the examination and prior to graduation every candidate who has satisfied requirements for the award of the degree will submit a final bound paper copy and a digital copy for deposit and preservation in the University Library [see 13]. School procedures may also require students to submit a final bound copy to Student Administrative Services.

2. All copies shall contain in the preliminary pages, preceding the Table of Contents, an Abstract of not more than 350 words which shall indicate the problem investigated, the procedures followed, the general results obtained and the major conclusions reached, but shall not contain any illustrative matter.

3. All copies will include the following statement:

#### Originality Statement

*'I hereby declare that this submission is my own work and to the best of my knowledge it contains no materials previously published or written by another person, or substantial proportions of material which have been accepted for the award of any other degree or diploma at UNSW or any other educational institution, except where due acknowledgment is made in the thesis. Any contribution made to the research by others, with whom I have worked at UNSW or elsewhere, is explicitly acknowledged in the thesis. I also declare that the intellectual content of this thesis is the product of my own work, except to the extent that assistance from others in the project's design and conception or in style, presentation and linguistic expression is acknowledged.'*

4. The following statements will be agreed to during the digital submission process and will be included in the Library deposit copy.

#### (a) Copyright Statement

*'I hereby grant to The University of New South Wales or its agents the right to archive and to make available my thesis or dissertation in whole or part in the University libraries in all forms of media, now or hereafter known, subject to the provisions of the Copyright Act 1968. I retain all proprietary rights, such as patent rights. I also retain the right to use in future works (such as articles or books) all or part of this thesis or dissertation.'*

I also authorise University Microfilms to use the abstract of my thesis in Dissertations Abstract International (this is applicable to doctoral theses only)

I have either used no substantial portions of copyright material in the my thesis or I have obtained permission to use copyright material; where permission has not been granted I have applied/will apply for a partial restriction of the digital copy of my thesis or dissertation.'

(b) Authenticity Statement

'I certify that the Library deposit digital copy is a direct equivalent of the final officially approved version of my thesis. No emendation of content has occurred and if there are any minor variations in formatting, they are the result of the conversion to digital format.'

5. All copies shall contain a title page showing the title, author's name, degree and year of submission.
6. All copies shall be in either 1.5 or double-spaced typescript. Font size shall be not less than 11-point (and 10-point for footnotes) in a legible font and printed using a high quality laser printer or equivalent.
7. For paper copies the size of the paper shall be International Standards Organisation paper size A4 (297 mm x 210mm). The paper used shall be of good quality and sufficiently opaque for normal reading. Faded, dirty or faint copies will not be accepted. A page may be printed on both sides as long as this does not interfere with the readability of the thesis. Pages shall be numbered consecutively. The margins on each sheet shall be not less than 40 mm on the left-hand side, 20 mm on the right-hand, 30 mm at the top and 20 mm at the bottom.
8. Diagrams, charts and tables should be presented in the text where possible. Large diagrams or charts may be folded and included in the text and arranged so as to open out. Visual records submitted in a text-based thesis may also be included. Other material submitted with the thesis must be marked with the candidate's name so that it can be linked readily with the thesis.  
  
All additional material submitted with the paper copies shall be digitised, where possible, and submitted as an attachment to the digital Library deposit copy.
9. Where the work presented for examination contains artefacts such as, a film, sculpture, painting, which remain the possession of the candidate, a full visual documentary record of the work shall be submitted in an appropriate format. All the work presented in the exhibition of work must be fully catalogued. The catalogue must contain visual documentation of work in progress; overall views of the final presentation and of each individual piece showing the entire work. For three-dimensional work, slides or other visual media, several views of the work are required. The visual documentary record shall be digitised, where possible, and submitted as an attachment to the digital Library deposit copy.
10. Where the work contains large-scale drawings these may be presented separately only with the supervisor's permission. They shall be of International Standards Organisation paper size A1 (841 mm x 594 mm) and shall have a margin of at least 40 mm on the left-hand side to permit binding. They shall be bound together on the left-hand side and shall have a clear sheet of drawing paper on top and underneath. On the top sheet shall be printed the words 'The University of New South Wales ..... of .... Degree' and the title of the thesis, and

underneath that, the year of submission. On the bottom right-hand corner shall be printed the name of the candidate. Drawings and graphics may be originals on cartridge paper or black and white prints. Where they are computer generated they must be printed using a high resolution laser printer or equivalent. They should be suitably coloured where appropriate and extra work may be added in ink to original drawings. The drawings shall be digitised, where possible, and submitted as an attachment to the digital Library deposit copy.

11. Where all or part of the thesis is based upon work which the candidate has had accepted for publication, details of all publications must be clearly stated.
12. Any variation to the requirements in (6-10) shall be approved by the supervisor in consultation with the University Librarian, College of Fine Arts Librarian or ADFA Librarian, as appropriate.
13. LIBRARY DEPOSIT COPIES: One paper bound copy and one digital copy of every thesis, which has satisfied University requirements for the award of the degree, must be deposited in the University Library at the conclusion of the examination and prior to the candidate being awarded the degree. An electronic version of a candidate's thesis is to be deposited by the Library on to the Australian Digital Theses (ADT) Database (<http://adt.caul.edu.au/>). The aim of the ADT is to establish a database of digital versions of theses produced by the postgraduate research students at Australian universities. The theses will be available worldwide via the Web. The ideal behind the program is to provide access to, and promote Australian research to the international community.
  - a). The electronic version of the thesis must be the same as the final version of the hard copy thesis deposited in the Library, except for minor changes resulting from the change in thesis format from hard copy to an electronic version.
  - b). The electronic version of the thesis is stored on the UNSW server in Portable Document Format (PDF) with appropriate document security.
  - c). World-wide access to the electronic version is the ideal, but in certain circumstances access can be restricted to:
    - (i) UNSW@ADFA campus only;
    - (ii) restrict all access for specified period; and,
    - (iii) selected files can be completely restricted (copyright, libel, etc.).

Further information can be obtained from the UNSW@ADFA ADT Co-ordinator (Christine Fulton, Cataloguing Librarian, Tel: +61 2 6268 8102 or email: [c.fulton@adfa.edu.au](mailto:c.fulton@adfa.edu.au)).

The Library paper deposit copy shall be bound by in accordance with the requirements given below. Acid free permanent paper, which will ensure preservation of the thesis for a minimum of 300 years, is recommended. A list of bookbinders, each of which is aware of the University's requirements, may be obtained from Student Administrative Services.

The Library deposit paper copy is to be bound in boards covered with buckram and shall be lettered on the spine as follows:

- (a) at the bottom and across – UNSW; or if the volume is too thin for this – UNSW may be printed vertically
- (b) 70 mm from the bottom and across, with the degree and year of submission of the thesis, for example –

PhD

2004

- (c) evenly spaced between the degree and year and the top of the spine the name of the candidate, initials first and then the surname, reading upwards in one line. No further lettering or any decoration is required on the spine or anywhere on the binding. In the binding of theses which include mounted photographs, folded graphs, etc. leaves at the spine shall be packed to ensure even thickness of the volume. All loose material shall be inserted in a pocket in the back inside cover of the volume binding or bound into a dummy volume of the same dimensions and the same lettering as the text volume.

### Schedule

1. Degrees and program codes for which candidates are required to submit 4 copies of a thesis to Student Administrative Services :

Doctor of Philosophy 1000—1990

Master of Philosophy 2225—2229

Doctor of Information Technology—9920

2. Degrees and program codes for which candidates are required to submit 3 copies of a thesis to Student Administrative Services:

Master of Arts — by thesis only or by coursework and thesis — 2405

Master of Science—by thesis 2041—2931

Master of Engineering—by thesis 2651—2691

3. Degrees and program codes for which candidates may be required to submit 2 copies of a research project, project report or sub-thesis to a Head of School (any variation to this requirement will be advised by Head of School):

Master of Arts 8172/8175

Master of Defence Studies 9900/9902/9904

Master of Engineering Science 8668/8568/8569

Master of Management Studies 8396/8398

Master of Science in Information Technology 8565/8562

Note:

This schedule may be varied from time to time as the University adds new programs, deletes old ones or amends the conditions of existing degrees.

## Policy with respect to the Use of Higher Degree, Research Projects and Theses

The University holds that the deposit copies of a thesis submitted for a higher degree and retained in the Library should be retained not only for record purposes but also, within copyright privileges of the author, should be public property and accessible for consultation at the discretion of the University Librarian. As digital theses are freely available to the public, candidates must obtain permission for use of copyright material and sign off accordingly. Otherwise such material will need to be restricted. The University also recognises that there may be other exceptional circumstances requiring restrictions on copying or conditions of use of paper copies, and restrictions or partial restrictions of digital copies. Another option is that digital theses may be restricted to the UNSW campus domain. It is expected that restricted digital theses will still be submitted with metadata such as the abstract, being publicly available. There may be exceptional circumstances when even the metadata will not be made available.

Requests for restriction of access to a thesis for a period of up to two years must be made in writing to Student Administrative Services prior to deposit of the final copies in the Library. Requests for a longer period of restriction may be considered in exceptional circumstances if accompanied by a letter of support from the supervisor or Head of School.

## Master of Philosophy (MPhil) – multiple codes

### Program Summary:

**Faculty:** UNSW@ADFA

**School/s:** School of Aerospace; Civil and Mechanical Engineering; School of Business; School of Humanities and Social Sciences; School of Information Technology and Electrical Engineering; School of Physical, Environmental and Mathematical Sciences

**Campus:** ADFA

**Award/s:** Master of Philosophy (MPhil)  
[School of Aerospace, Civil and Mechanical Engineering (2227); School of Humanities and Social Sciences (2225); School of Business (2226); School of Information Technology and Electrical Engineering (2228); School of Physical, Environmental and Mathematical Sciences (2229)]

**Career:** Research

**Duration:** One and half years full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 72UOC

## Program Description:

The Master of Philosophy is a research degree with an examinable coursework component, taken over three sessions and comprising 72 Units of Credit. A thesis, awarded 48 Units of Credit, embodies the result of an original investigation, design or engineering development. A program of advanced study, comprising 24 Units of Credit of coursework, makes up the remainder of the program. The coursework component will normally comprise four courses selected from the Coursework Masters offerings for the relevant discipline. Candidates may undertake interdisciplinary studies subject to approval. Subject to the approval of the program authority, candidates may enrol in postgraduate courses from other tertiary institutions.

Before enrolment an applicant should submit an intended program for approval by the School controlling the research discipline for the degree. The School will ensure that the coursework component is relevant to, or complements, the research component, and that the candidate satisfies pre-requisite requirements for the study.

**Admission Guidelines:** A candidate for registration for the degree of Master of Philosophy should hold a relevant Bachelor's degree, usually at Honours level, from The University of New South Wales or from another approved University. Applications for admission should be made to the Manager, Student Administrative Services, UNSW@ADFA on the prescribed form at least one calendar month before the commencement of the Session in which registration is to begin.

**Period of Candidature:** The normal period is three academic sessions (full time) and six academic sessions (part time) from the date of enrolment. Subject to feasibility of supervision, research may be undertaken during Summer Session. The maximum period of registration is five academic sessions (full time) and ten academic sessions (part time). In special cases, extensions may be granted.

The degree provides the opportunity to complete a research program with associated coursework in one calendar year.

The structure of the degree is flexible, but might typically comprise:

Session	Academic Program	UOC
1	4 courses, selected from School postgraduate coursework and/or the Graduate School of Engineering electives, or approved courses from other tertiary institutions.	24
2	Research Thesis	24
Summer/3	Research Thesis	24

The Summer Session need not be the last in the program. Coursework is not usually available in the Summer Session. Research may only be undertaken during the Summer Session if suitable supervision can be arranged.

## Academic Rules:

1. The degree of Master of Philosophy by research may be awarded by the Council on the recommendation of the Higher Degree Committee of the Faculty of Engineering, or the Research Committee of the University College, ADFA, (hereinafter collectively referred to as the Committee) to a candidate who has demonstrated ability to undertake research by the submission of a thesis (48UOC) embodying the results of an original investigation, and who has satisfied the advanced postgraduate coursework requirements (24UOC) of the degree.

## Qualifications

2. (1) A candidate for the degree shall have been awarded an appropriate degree of Bachelor in the relevant discipline from The University of New South Wales or a qualification considered equivalent from another university or tertiary institution at a level acceptable to the Committee, usually an Honours level.
- (2) In exceptional cases an applicant who submits evidence of such other academic and professional qualifications as may be approved by the Committee may be permitted to enrol for the degree.
- (3) If the Committee is not satisfied with the qualifications submitted by an applicant the Committee may require the applicant to undergo such assessment or carry out such work as the Committee may prescribe, before permitting enrolment.

## Enrolment

3. (1) An application to enrol as a candidate for the degree shall be made on the prescribed form which shall be lodged with the Registrar or the Manager, Student Administrative Services, UNSW@ADFA at least one calendar month before the commencement of the session in which enrolment is to begin.
- (2) In every case before making the offer of a place the Committee shall be satisfied that initial agreement has been reached between the School controlling the relevant discipline and the applicant on the research area, supervision arrangements, provision of adequate facilities and the coursework to be undertaken, and that these are in accordance with the provisions of the guidelines for promoting postgraduate study within the University.
- (3) The candidate shall be enrolled as either a full-time or part-time student.
- (4) A full-time candidate will present the thesis for examination no earlier than the equivalent of 3 sessions and no later than 5 sessions from the date of enrolment; a part-time candidate will present the thesis for examination no earlier than 6 sessions and no later than 10 sessions from the date of enrolment, except with the approval of the Committee.

- (5) The candidate may undertake the research as an internal student i.e. at a campus, teaching hospital, or other research facility with which the University is associated or as an external student not in attendance at the University except for periods as may be prescribed by the Committee.
- (6) An internal candidate will normally carry out the research on a campus or at a teaching or research facility of the University except that the Committee may permit a candidate to spend a period in the field, within another institution or elsewhere away from the University provided that the work can be supervised in a manner satisfactory to the Committee. In such instances the Committee shall be satisfied that the location and period of time away from the University are necessary to the research program.
- (7) The research shall be supervised by at least two supervisors who are members of the academic staff of the School or under other appropriate supervision arrangements approved by the Committee. Normally an external candidate within another organisation or institution will have a co-supervisor at that institution.
- (8) Schools may, at their discretion, appoint a Management Panel (which might include members from outside the school) to provide administrative support to the candidate and the supervisors. In addition to administrative matters, the panel could have responsibility for progress review and examination of the candidate's work, assistance with appointment of examiners and consultation with the candidate at other critical times. The Management Panel should not include any supervisor of the research.
- (9) There is an expectation that coursework be completed as soon as feasible within the MPhil program.

### Progression

4. The progress of the candidate shall be considered by the Higher Degree Committee following report from the School, in accordance with the procedures established within the Faculty or at University College and previously noted by the Committee.
  - (i) The research proposal will be reviewed as soon as feasible after enrolment. For a full-time student this will normally be after one session. This review will focus on both the viability of the research proposal, and evidence of satisfactory commencement of the research.
  - (ii) Progress in the program will require that 24 Units of Credit of approved coursework are undertaken during candidature, and that all courses are passed at the first attempt. As a result of failure in any part of the coursework component, the Committee, advised by the School, may cancel enrolment or take such other action as it considers appropriate. Thereafter, the progress of the candidate will be reviewed each session.

### Thesis

5. (1) On completing both the program of research and all coursework, a candidate shall submit a thesis embodying the results of the investigation. The thesis would not normally exceed 40,000 words (or equivalent length).
- (2) The candidate shall give in writing to the Registrar or the Manager, Student Administrative Services one month's notice of intention to submit the thesis.
- (3) The thesis shall present an account of the candidate's own research. In special cases work done conjointly with other persons may be accepted, provided the Committee is satisfied about the candidate's part in the joint research, and the candidate submits an individual thesis.
- (4) Three copies of the thesis shall be presented in a form which complies with the requirements of the University for the preparation and submission of theses for higher degrees.
- (5) The University has the right to retain the three copies of the thesis submitted for examination and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the *Copyright Act, 1968*, the University may issue the thesis in whole or in part, in photostat or microfilm or other copying medium. The University may protect Intellectual Property by restricting circulation of the thesis for a limited period (usually not exceeding 2 years).
- (6) An electronic version of the thesis shall be submitted to the library on completion of all work and corrections.

### Examination

6. (1) There shall be no fewer than two examiners of the thesis, appointed by the committee acting on advice of the school, one of whom should be external to the university unless the committee resolves otherwise, and neither of whom should be supervisors of the research.
- (2) The entire examination process may include both the examination of the thesis and the option of a concurrent oral defence.
- (3) At the conclusion of the examination of the thesis each examiner shall submit to the Committee, a concise report on the thesis, and shall recommend to the Committee that:
  - (a) The thesis is satisfactory.
  - (b) The thesis is satisfactory subject to minor corrections as listed being made to the satisfaction of the Head of School.
  - (c) The thesis requires further work on matters detailed in the report. Should performance in this further work be to the satisfaction of the Higher Degree Committee, the thesis would be satisfactory.
  - (d) The thesis is not satisfactory in its present form and further work as described in the report is required. The revised thesis should be subject to re-examination.



- (e) The thesis is not satisfactory and does not demonstrate that resubmission would be likely to alter that assessment.

- (4) Concurrently with examination of the thesis, the Committee has the option on advice from the School, to convene an Oral Defence Panel (the Panel), comprising no less than 3 and no more than 5 panel members, including the two examiners and, where appropriate, members of the Management Panel, or any members who may otherwise be selected by the Committee. The Panel will conduct an oral defence by the candidate of the work reported in the thesis, at which the examiners' questions, and those of other members of the Panel shall be put to the candidate. In special circumstances, the Committee may recommend that the oral defence be conducted by an appropriate alternative means, (e.g. a telephone link with the external examiner, or less usually the candidate). Following the defence, the Panel will prepare a short report for the Committee, and recommend either that the oral defence was satisfactory, or that it was unsatisfactory.
- (5) The School shall report to the Committee satisfactory completion of any further work required by the Committee on the recommendation of the examiners and the Oral Defence Panel.
- (6) The Committee shall, after consideration of the examiners' reports and the results of the oral defence, recommend whether or not the candidate may be awarded the degree. If it is decided that the candidate be not awarded the degree the Committee shall determine whether or not the candidate should be permitted to resubmit the thesis after a further period of study and/or research. When an oral defence of the thesis has taken place, the Committee may also determine whether a supplementary oral defence of the thesis is required.

### Fees

7. A candidate shall pay such fees as may be determined from time to time by the Council.

***For information on the length of theses and the preparation and Submission of Project Reports and Theses for Higher Degrees, please refer to the entry under the rules for PhD on page 258.***

## Master of Arts (Research) (MA) – 2405

### Program Summary:

**Faculty:** UNSW@ADFA  
**School:** School of Humanities and Social Sciences  
**Campus:** ADFA  
**Award:** 2405 Master of Arts (Research) (MA)  
**Career:** Research  
**Duration:** Maximum of three sessions full-time or part-time equivalent  
**UOC per session:** 24UOC (full-time)  
**UOC for award:** 72UOC

### Program Description:

The Master of Arts (Research) program is a research degree comprising either a research thesis of substantial length, or four courses and a research thesis. The degree may be completed in a minimum of three sessions (full-time). It is designed to provide the option of formal coursework research training for students wishing to engage in serious research on a project that can be completed in a shorter time than the PhD. Clear indication of potential to undertake research is required, either through a relevant Honours Bachelor degree or equivalent, or through a period of professional work following a relevant undergraduate degree.

### Academic Rules:

- The degree of Master of Arts (Research) may be awarded by the Council on the recommendation of the Research Committee of the University College to a candidate who has demonstrated ability to undertake research by submission of a thesis of 50,000-60,000 words embodying the results of original research or by a thesis of a minimum of 30,000-40,000 words combined with the satisfactory completion of a program of coursework study, consisting of 4 courses of 6 units of credit each.

### Qualifications

- (1) A candidate for the degree shall:
  - have been awarded an appropriate degree of Bachelor with Honours from The University of New South Wales at a standard not below Honours Class 2 or a qualification considered equivalent from another university or tertiary institution;
  - or
  - have been awarded an appropriate award of Graduate Diploma at an average of Credit from The University of New South Wales or a qualification considered equivalent from another university or tertiary institution;

or

- (c) have had at least two years professional experience of a kind acceptable to the Research Committee AND have been awarded an appropriate degree of Bachelor from The University of New South Wales or a qualification considered equivalent from another university or tertiary institution,

and

- (i) satisfy the Research Committee that the qualification is at a level and of a character indicating research potential;

or

- (ii) submit other evidence satisfying the Research Committee of their research potential.

- (2) In exceptional cases an applicant who submits evidence of such other academic and professional qualifications as may be approved by the Research Committee may be permitted to enrol for the degree.
- (3) If the Research Committee is not satisfied with the qualifications submitted by an applicant it may require the applicant to undergo such assessment or carry out such work as the Committee may prescribe, before permitting enrolment.

### Enrolment

- 3. (1) An application to enrol as a candidate for the degree shall be made on the prescribed form which shall be lodged with the Registrar at least one calendar month before the commencement of the session in which enrolment is to begin or, where applicable, by the advertised closing date.
- (2) In every case, before making the offer of a place the Committee shall be satisfied that initial agreement has been reached between the School and the applicant on the topic area, supervision arrangements, provision of adequate facilities and any coursework to be prescribed and that these are in accordance with the provisions of the guidelines for promoting postgraduate study within the University.
- (3) The candidate shall be enrolled as either a full-time or part-time student.
- (4) To qualify for the award of the degree a candidate shall undertake such formal courses and pass such assessment as prescribed;

either

- (i) Obtain 24 units of credit in approved coursework and 48 units of credit through the submission of a thesis (30,000–40,000 words) demonstrating the capacity to conduct, under supervision, an original investigation on an approved topic.

or

- (ii) Submit a research thesis of 50,000–60,000 words in length.

- (5) A full-time candidate will present the thesis for examination no earlier than 1.5 years and no later than 3 years from the date of enrolment and a part-time candidate will present the thesis for examination no earlier than 2 years and no later than 4 years from the date of enrolment. In special cases a variation of these times may be granted by the Committee.
- (6) The candidate may undertake the research as an internal student i.e. at a campus, or other research facility, with which the University is associated, or an external student not in attendance at the University except for periods as may be prescribed by the University.
- (7) An internal candidate will normally carry out the research on a campus or at a teaching or research facility of the University except that the Committee may permit a candidate to spend a period in the field, within another institution or elsewhere away from the University provided that the work can be supervised in a manner satisfactory to the Committee. In such instances the Committee shall be satisfied that the location and period of time away from the University are necessary to the research program.
- (8) The research shall be supervised by a supervisor or supervisors who are members of the academic staff of the School or under other appropriate supervision arrangements approved by the Committee. Normally an external candidate within another organisation or institution will have a co-supervisor at that institution.

### Progression

- 4. (1) The progress of candidates undertaking research shall be considered by the Committee following report from the School in accordance with the procedures established within the School and previously noted by the Committee.
- (i) The research proposal will be reviewed as soon as feasible after enrolment. For a full-time student this will normally be during the second year of study, or immediately following a period of prescribed coursework. This review will focus on the viability of the research proposal.
- (ii) Progress in the program will be reviewed within twelve months of the first review. As a result of either review the Committee may cancel enrolment or take such other action as it considers appropriate. Thereafter, the progress of the candidate will be reviewed annually.

### Thesis

- 5. (1) On completing the program of study a candidate shall submit a thesis embodying the results of the investigation.
- (2) The candidate shall give in writing to Student Administrative Services two months' notice of intention to submit the thesis.
- (3) The thesis shall present an account of the candidate's own research. In special cases work done conjointly with other persons may be accepted, provided the Committee is satisfied as to the candidate's part in the joint research.

- (4) The candidate may also submit any work previously published whether or not such work is related to the thesis.
- (5) Three copies of the thesis shall be presented in a form which complies with the requirements of the University for the preparation and submission of theses for higher degrees.
- (6) The University has the right to retain the three copies of the thesis submitted for examination and is free to allow it to be consulted or borrowed. Subject to the provisions of the *Copyright Act, 1968*, the University may issue the thesis in whole or in part, in photostat or microfilm or other copying medium.

### Examination

6. (1) There shall be no fewer than two examiners of the thesis or project report, at least one of whom shall be external to the University unless the Committee is satisfied that this is not practicable.
- (2) At the conclusion of the examination each examiner shall submit to the committee a concise report on the thesis and shall recommend to the Committee that:
  - (a) The thesis merits the award of the degree.
  - (b) The thesis merits the award of the degree subject to minor corrections as listed being made to the satisfaction of the Head of the School.
  - (c) The thesis requires further work on matters detailed in my report. Should performance in this further work be to the satisfaction of the Research Committee, the thesis would merit the award of the degree.
  - (d) The thesis does not merit the award of the degree in its present form and further work as described in my report is required. The revised thesis should be subject to re-examination.
  - (e) The thesis does not merit the award of the degree and does not demonstrate that resubmission would be likely to achieve that merit.
- (3) If the performance in the further work recommended under (2)(c) above is not to the satisfaction of the Committee, the Committee may permit the candidate to re-present the same thesis and submit for further examination as determined by the Committee within a period specified by it but not exceeding eighteen months.
- (4) The Committee shall, after consideration of the examiners' reports and the results of any further examination, recommend whether or not the candidate may be awarded the degree. If it is decided that the candidate not be awarded the degree, the Committee shall determine whether or not the candidate be permitted to resubmit the thesis after a further period of study and/or research.

**For information on the length of theses and the preparation and Submission of Project Reports and Theses for Higher Degrees, please refer to the entry under the rules for PhD on page 258.**

## Master of Engineering (Research) (ME) – multiple codes

### Program Summary:

**Faculty:** UNSW@ADFA

**School/s:** School of Aerospace, Civil and Mechanical Engineering; School of Information Technology and Electrical Engineering

**Campus:** ADFA

**Award/s:** Master of Engineering (ME)  
[Aerospace 2693; Civil 2651; 2663 Electrical; 2691 Mechanical]

**Career:** Research

**Duration:** Two years full-time or part-time equivalent

**UOC per session:** 24UOC

**UOC for award:** 96UOC

### Program Description:

This program is designed primarily as training in a program of advanced study and research. The candidate learns the fundamentals of research and acquires new techniques. The program may include formal coursework which is normally intended to prepare the candidate for work on the thesis. The candidate must undertake an original investigation but this would normally be more limited in scope and degree of originality than is required for a doctorate. Although originality is to be encouraged as much as possible, the work will be closely supervised in the early problem formulation stages and whenever a new technique is being used. Most Masters research programs require a minimum three academic sessions (ie 1.5 years) of full-time study and the preparation of a thesis. The length of a Masters research thesis normally should not exceed 60,000 words of text.

### Academic Rules:

1. The degree of Master of Engineering by research may be awarded by the Council on the recommendation of the Research Committee of the University College (hereinafter referred to as the Committee) to a candidate who has demonstrated ability to undertake research by the submission of a thesis embodying the results of an original investigation.

### Qualifications

2. (1) A candidate for the degree shall have been awarded at a standard not below Honours Class 2 an appropriate degree of Bachelor from The University of New South Wales or a qualification considered equivalent from another university or tertiary institution.
- (2) In exceptional cases an applicant who submits evidence of such other academic and professional qualifications as may be approved by the Committee may be permitted to enrol for the degree.

- (3) If the Committee is not satisfied with the qualifications submitted by an applicant the Committee may require the applicant to undergo such examination or carry out such work as the Committee may prescribe.

### Enrolment

3. (1) An application to enrol as a candidate for the degree shall be made on the prescribed form which shall be lodged with Student Administrative Services at least one calendar month before the commencement of the session in which enrolment is to begin or, where applicable, by the advertised starting date.
- (2) In every case, before making the offer of a place the Committee shall be satisfied that initial agreement has been reached between the School and the applicant on the topic area, supervision arrangements, provision of adequate facilities and any coursework to be prescribed and that these are in accordance with the provisions of the guidelines for promoting postgraduate study within the University.
- (3) The candidate shall be enrolled as either a full-time or a part-time student.
- (4) A full-time candidate will present the thesis for examination no earlier than 1.5 years and no later than 3 years from the date of enrolment; a part-time candidate will present the thesis for examination no earlier than 2 years and no later than 5 years from the date of enrolment, except with the approval of the Committee.
- (5) The candidate may undertake the research as an internal student i.e. at a campus, teaching hospital, or other research facility with which the University is associated, or as an external student not in attendance at the University except for periods as may be prescribed by the Committee.
- (6) An internal candidate will normally carry out the research on a campus or at a teaching or research facility of the University except that the Committee may permit a candidate to spend a period in the field, within another institution or elsewhere away from the University provided that the work can be supervised in a manner satisfactory to the Committee. In such instances the Committee shall be satisfied that the location and period of time away from the University are necessary to the research program.
- (7) The research shall be supervised by a supervisor or supervisors who are members of the academic staff of the School or under other appropriate supervision arrangements approved by the Committee. Normally an external candidate within another organisation or institution will have a co-supervisor at that institution.

### Progression

4. The progress of the candidate shall be considered by the Committee following report from the School in accordance with the procedures established within the School and previously noted by the Committee.
  - (i) The research proposal will be reviewed as soon as feasible after enrolment. For a full-time student this will normally be during the second year of study, or immediately following a period of prescribed coursework. This review will focus on the viability of the research proposal.
  - (ii) Progress in the course will be reviewed within twelve months of the first review. As a result of either review the Committee may cancel enrolment or take such other action as it considers appropriate. Thereafter, the progress of the candidate will be reviewed annually.

### Thesis

5. (1) On completing the program of study a candidate shall submit a thesis embodying the results of the investigation.
- (2) The candidate shall give in writing to Student Administrative Services two months' notice of intention to submit the thesis.
- (3) The thesis shall present an account of the candidate's own research. In special cases work done conjointly with other persons may be accepted, provided the Committee is satisfied about the extent of the candidate's part in the joint research.
- (4) The candidate may also submit any work previously published whether or not such work is related to the thesis.
- (5) Three copies of the thesis shall be presented in a form which complies with the requirements of the University for the preparation and submission of theses for higher degrees.
- (6) The University has the right to retain the three copies of the thesis submitted for examination and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the *Copyright Act, 1968*, the University may issue the thesis in whole or in part, in photostat or microfilm or other copying medium.

### Examination

6. (1) There shall be no fewer than two examiners of the thesis, appointed by the Committee, at least one of whom shall be external to the University unless the Committee is satisfied that this is not practicable.
- (2) At the conclusion of the examination each examiner shall submit to the Committee a concise report on the merits of the thesis and shall recommend to the Committee that:
  - (a) The thesis merits the award of the degree.
  - (b) The thesis merits the award of the degree subject to minor corrections as listed being made to the satisfaction of the Head of the School.

- (c) The thesis requires further work on matters detailed in my report. Should performance in this further work be to the satisfaction of the Research Committee, the thesis would merit the award of the degree.
  - (d) The thesis does not merit the award of the degree in its present form and further work as described in my report is required. The revised thesis should be subject to re-examination.
  - (e) The thesis does not merit the award of the degree and does not demonstrate that resubmission would be likely to achieve that merit.
- (3) If the performance in the further work recommended under (2)(c) above is not to the satisfaction of the Committee, the Committee may permit the candidate to re-present the same thesis and submit to further examination as determined by the Committee within a period specified by it but not exceeding eighteen months.
- (4) The Committee shall, after consideration of the examiners' reports and the results of any further examination, recommend whether or not the candidate may be awarded the degree. If it is decided that the candidate not be awarded the degree the Committee shall determine whether or not the candidate be permitted to resubmit the thesis after a further period of study and/or research.

#### Fees

7. A candidate shall pay such fees as may be determined from time to time by the Council.

***For information on the length of theses and the preparation and Submission of Project Reports and Theses for Higher Degrees, please refer to the entry under the rules for PhD on page 258.***

## Master of Science (Research) (MSc) – multiple codes

#### Program Summary:

**Faculty:** UNSW@ADFA

**School/s:** School of Information Technology and Electrical Engineering; School of Physical, Environmental and Mathematical Sciences

**Campus:** ADFA

**Award/s:** Master of Science (MSc)  
[Chemistry 2911; Computer Science 2925; Geography and Oceanography 2041; Mathematics and Statistics 2921; Physics 2931]

**Career:** Research

**Duration:** Two years full-time or part-time equivalent

**UOC per session:** 24UOC (full-time)

**UOC for award:** 96UOC

#### Program Description:

This program is designed primarily as training in a program of advanced study and research. The candidate learns the fundamentals of research and acquires new techniques. The program may include formal coursework which is normally intended to prepare the candidate for work on the thesis. The candidate must undertake an original investigation but this would normally be more limited in scope and degree of originality than is required for a doctorate. Although originality is to be encouraged as much as possible, the work will be closely supervised in the early problem formulation stages and whenever a new technique is being used. Most Masters research programs require a minimum three academic sessions (ie 1.5 years) of full-time study and the preparation of a thesis. The length of a Masters research thesis normally should not exceed 60,000 words of text.

#### Academic Rules:

1. The degree of Master of Science by research may be awarded by the Council on the recommendation of the Research Committee of the University College (hereinafter referred to as the Committee) to a candidate who has demonstrated ability to undertake research by the submission of a thesis embodying the results of an original investigation.

#### Qualifications

2. (1) A candidate for the degree shall have been awarded at a standard not below Honours Class 2 an appropriate degree of Bachelor from The University of New South Wales or a qualification considered equivalent from another university or tertiary institution.
- (2) In exceptional cases an applicant who submits evidence of such other academic and professional qualifications as may be approved by the Committee may be permitted to enrol for the degree.

- (3) If the Committee is not satisfied with the qualifications submitted by an applicant the Committee may require the applicant to undergo such examination or carry out such work as the Committee may prescribe.

### Enrolment

3. (1) An application to enrol as a candidate for the degree shall be made on the prescribed form which shall be lodged with Student Administrative Services at least one calendar month before the commencement of the session in which enrolment is to begin or, where applicable, by the advertised starting date.
- (2) In every case, before making the offer of a place the Committee shall be satisfied that initial agreement has been reached between the School and the applicant on the topic area, supervision arrangements, provision of adequate facilities and any coursework to be prescribed and that these are in accordance with the provisions of the guidelines for promoting postgraduate study within the University.
- (3) The candidate shall be enrolled as either a full-time or a part-time student.
- (4) A full-time candidate will present the thesis for examination no earlier than 1.5 years and no later than 3 years from the date of enrolment; a part-time candidate will present the thesis for examination no earlier than 2 years and no later than 5 years from the date of enrolment, except with the approval of the Committee.
- (5) The candidate may undertake the research as an internal student i.e. at a campus, teaching hospital, or other research facility with which the University is associated, or as an external student not in attendance at the University except for periods as may be prescribed by the Committee.
- (6) An internal candidate will normally carry out the research on a campus or at a teaching or research facility of the University except that the Committee may permit a candidate to spend a period in the field, within another institution or elsewhere away from the University provided that the work can be supervised in a manner satisfactory to the Committee. In such instances the Committee shall be satisfied that the location and period of time away from the University are necessary to the research program.
- (7) The research shall be supervised by a supervisor or supervisors who are members of the academic staff of the School or under other appropriate supervision arrangements approved by the Committee. Normally an external candidate within another organisation or institution will have a co-supervisor at that institution.

### Progression

4. The progress of the candidate shall be considered by the Committee following report from the School in accordance with the procedures established within the School and previously noted by the Committee.
  - (i) The research proposal will be reviewed as soon as feasible after enrolment. For a full-time student this will normally be during the second year of study, or immediately following a period of prescribed coursework. This review will focus on the viability of the research proposal.
  - (ii) Progress in the course will be reviewed within twelve months of the first review. As a result of either review the Committee may cancel enrolment or take such other action as it considers appropriate. Thereafter, the progress of the candidate will be reviewed annually.

### Thesis

5. (1) On completing the program of study a candidate shall submit a thesis embodying the results of the investigation.
  - (2) The candidate shall give in writing to Student Administrative Services two months' notice of intention to submit the thesis.
  - (3) The thesis shall present an account of the candidate's own research. In special cases work done conjointly with other persons may be accepted, provided the Committee is satisfied about the extent of the candidate's part in the joint research.
  - (4) The candidate may also submit any work previously published whether or not such work is related to the thesis.
  - (5) Three copies of the thesis shall be presented in a form which complies with the requirements of the University for the preparation and submission of theses for higher degrees.
  - (6) The University has the right to retain the three copies of the thesis submitted for examination and is free to allow the thesis to be consulted or borrowed. Subject to the provisions of the *Copyright Act, 1968*, the University may issue the thesis in whole or in part, in photostat or microfilm or other copying medium.

### Examination

6. (1) There shall be no fewer than two examiners of the thesis, appointed by the Committee, at least one of whom shall be external to the University unless the Committee is satisfied that this is not practicable.
  - (2) At the conclusion of the examination each examiner shall submit to the Committee a concise report on the merits of the thesis and shall recommend to the Committee that:
    - (a) The thesis merits the award of the degree.
    - (b) The thesis merits the award of the degree subject to minor corrections as listed being made to the satisfaction of the Head of the School.

- (c) The thesis requires further work on matters detailed in my report. Should performance in this further work be to the satisfaction of the Research Committee, the thesis would merit the award of the degree.
  - (d) The thesis does not merit the award of the degree in its present form and further work as described in my report is required. The revised thesis should be subject to re-examination.
  - (e) The thesis does not merit the award of the degree and does not demonstrate that resubmission would be likely to achieve that merit.
- (3) If the performance in the further work recommended under (2)(c) above is not to the satisfaction of the Committee, the Committee may permit the candidate to re-present the same thesis and submit to further examination as determined by the Committee within a period specified by it but not exceeding eighteen months.
- (4) The Committee shall, after consideration of the examiners' reports and the results of any further examination, recommend whether or not the candidate may be awarded the degree. If it is decided that the candidate not be awarded the degree the Committee shall determine whether or not the candidate be permitted to resubmit the thesis after a further period of study and/or research.

#### **Fees**

7. A candidate shall pay such fees as may be determined from time to time by the Council.

***For information on the length of theses and the preparation and Submission of Project Reports and Theses for Higher Degrees, please refer to the entry under the rules for PhD on page 258.***





# PRIZES AND AWARDS

Legend  
V = Value  
C = Criteria

## Undergraduate UNSW@ADFA Prizes

The following list summarises the undergraduate prizes awarded by UNSW@ADFA. In addition to the prizes listed below, each of the academic Schools may award prizes for outstanding performance by undergraduate students.

## Undergraduate Prizes

### Air Vice Marshal Noble Prize

(Canberra Branch of Royal Aeronautical Society)

V \$150

C Distinguished performance in fourth year Aeronautical Engineering.

### AISC Undergraduate Steel Design Award

V Books and software to the value of \$200

C The best performance by a student who attains at least a distinction in the steel design component of the teaching courses ZACM3210 *Structural Design 1A* and also attains at least a credit in ZACM3224 *Structural Analysis 1A* and ZACM3225 *Structural Analysis 1B*.

### Alan Carter Prize

V Books, Atlas or Chart to the value of \$100

C The best performance in Level I Marine Science.

### A.H. Corbett Prize

V \$200 and Bronze Medal

C The most outstanding graduate in engineering.

### Australian Institute of Management Prize

V \$300, plus one year's membership

C Outstanding performance in undergraduate Management studies by a student who has completed at least 12 units of credit at the upper-level.

### Australian Institute of Physics Prize (ACT Branch)

V \$200, one year's membership of the Institute and books to the value of \$100

C Most distinguished performance in Level II Physics.

### Bachelor of Arts Peter Stuckey Mitchell Trust Prize

V \$100

C The RAN cadet in year 1, 2 and 3 with the highest aggregate mark in the Bachelor of Arts course.

### Bachelor of Engineering Peter Stuckey Mitchell Trust Prize

V \$100

C The RAN cadet in year 1, 2 and 3 with the highest aggregate mark in the Bachelor of Engineering course.

### Bachelor of Science Peter Stuckey Mitchell Trust Prize

V \$100

C The RAN cadet in year 1, 2 and 3 with the highest aggregate mark in the Bachelor of Science course.

### BAE Systems Australia Award in Electrical Engineering

V \$250

C The best overall performance in all four years of the electrical engineering program by a student undertaking a specialty in communications and/or electronics.

### Barry Andrews Shakespeare Prize

V \$100 book voucher

C The best performance by an undergraduate student in Shakespeare and/or renaissance drama studies.

### Boeing Australia Limited Award

V \$170 and a plaque

C The best performance in Level I Electrical Engineering.

### Commended Computing Project Prize (Cisco Systems)

V \$400

C The commended project submitted for ZITE3101 *Computing Project - Computer Science*.

### Co-op Bookshop Prizes

V \$100 - 1st year prize  
\$100 - 2nd year prize  
\$100 - 3rd year prize

C For excellence in Indonesian studies.

### Creative Writing Prize

V \$250 - 1st prize  
\$150 - 2nd prize  
\$100 - 3rd prize

C The best examples of creative writing by undergraduate students.

### Dorothy Green Prize

V \$200

C The best essay by an undergraduate student on Australian Literature.

### E. R. Bryan Prize

V \$100

C Distinguished performance by a second-year undergraduate student in Level I English.

### Economic Society Prize

V \$300

C Awarded for the best project in the upper undergraduate course ZBUS2203 *The Making of Economic Policy*.

**Engineering First-Year Prize****V** \$250

- C** The most distinguished performance by a full-time undergraduate student in the first year of the Bachelor of Engineering or Bachelor of Technology program.

**Engineering Second-Year Prize****V** \$250

- C** The most distinguished performance by a full-time undergraduate student in the second year of the Bachelor of Engineering or Bachelor of Technology program.

**Engineering Third-Year Prize****V** \$250

- C** The most distinguished performance by a full-time undergraduate student in the third-year of the Bachelor of Engineering or Bachelor of Technology program.

**H.P. Heseltine Prize****V** \$250

- C** Most outstanding performance in Final Year English Honours

**Highly Commended Computing Project Prize (Cisco Systems)****V** \$600

- C** The highly commended project submitted for ZITE3101 *Computing Project - Computer Science*.

**Bachelor of Arts First-Year Prize****V** \$250

- C** The most distinguished performance by a full-time undergraduate student in the first year of the Bachelor of Arts program.

**Bachelor of Arts Second-Year Prize****V** \$250

- C** The most distinguished performance by a full-time undergraduate student in the second year of the Bachelor of Arts program.

**Bachelor of Arts Third-Year Prize****V** \$250

- C** The most distinguished performance by a full-time undergraduate student in the third year of the Bachelor of Arts program.

**Institute of Explosives Engineers Prize****V** \$120, plus membership

- C** The best performance in the teaching course ZACM4905 *Blast Design*.

**Institution of Electrical Engineers Australia Prize****V** \$250, a certificate and two years' free membership of the Institution

- C** The best overall performance by a student in third year studies in Electrical Engineering.

**The IEEE ACT Section "Communication in Electrical Engineering" Prize****V** \$300

- C** The Prize is to be awarded annually to Electrical Engineering students at ADFA that demonstrate high-level skill in communicating electrical engineering problems and solutions to a lay audience through the poster presentation in their final year of Electrical Engineering.

The Institute of Electrical and Electronics Engineers (IEEE) encourages Electrical Engineers to make their work known to a broad audience, to promote a broad understanding of electrical engineering and to foster respect for and interest in the profession and this prize is part of this commitment.

**L. C. F. Turner Prize****V** \$500

- C** Outstanding performance in History Honours program or in a History major sequence by a graduating student.

**L.W. Gairns Memorial Prize and Trophy****V** \$100 and Perpetual Trophy

- C** The best performance in the final year of the Bachelor of Technology (Aeronautical) degree.

**Military Historical Society of Australia Prize****V** \$200

- C** The best essay by an upper year student on a military history topic.

**Most Outstanding Computing Project Prize****V** \$1000

- C** The most outstanding project submitted for ZITE3101 *Computing Project - Computer Science*.

**N Matsumoto Australian Defence Studies Centre Prize****V** \$500

- C** The best student in ZHSS2002 *Introduction to Strategic Studies*.

**Professor Grahame Johnston Prize****V** Books to the value of \$100

- C** The best performance by an undergraduate student in Australian Literature.

**RAAF Beaufort Bombers Scholarship****V** TBA

- C** The RAAF Beaufort Bombers Scholarship will operate as a prize to be awarded annually to allow RAAF students at ADFA to undertake travel to support university sponsored projects or thesis work. To be eligible for the RAAF Beaufort Bombers Scholarship, the applicant must be a member of the RAAF in their third or fourth academic year of undergraduate study at UNSW@ADFA

### R. J. A. Barnard Memorial Prize

V \$100

- C Outstanding performance in a Mathematics major sequence by a graduating student.

### Royal Australian Chemical Institute Prize

V \$200

- C Outstanding performance in third year Chemistry studies.

### Science First-Year Prize

V \$250

- C The most distinguished performance by a full-time undergraduate student in the first year of the Bachelor of Science program.

### Science Prize (British Aerospace Australia)

V \$250

- C The most distinguished performance in the three years of the Bachelor of Science program.

### Science Second-Year Prize

V \$250

- C The most distinguished performance by a full-time undergraduate student in the second year of the Bachelor of Science program.

### Science Third-Year Prize

V \$250

- C The most distinguished performance by a full-time undergraduate student in the third year of the Bachelor of Science program.

### Second-Year Computer Science Prize (Australian Computer Society)

V \$200

- C The best performance in second-year Computer Science.

### Second-Year Information Systems Prize (Price Waterhouse Coopers)

V \$200

- C The best performance in second-year Information Systems.

### Sinclair Knights Merz Prize for Geomatic Engineering

V \$200

- C The best performance in the teaching course in ZACM2211 *Engineering Surveying*.

### Sir Leslie Martin Prize

V \$100

- C Distinguished performance in Level I Physics.

### Statistical Society of Australia Prize

V \$150

- C The best performance in Level II Statistics.

### The Australian Society for Defence Engineering Prize in Aeronautical Engineering

V \$250

- C The most outstanding final year thesis or integrated design portfolio by undergraduate students completing the Bachelor of Engineering (Aero).

### The Australian Society for Defence Engineering Prize in Civil Engineering

V \$250

- C The most outstanding final year thesis or integrated design portfolio by undergraduate students completing the Bachelor of Engineering (Civil).

### The Australian Society for Defence Engineering Prize in Electrical Engineering

V \$250

- C The most outstanding final year thesis or integrated design portfolio by undergraduate students completing the Bachelor of Engineering (Electrical).

### The Australian Society for Defence Engineering Prize in Mechanical Engineering

V \$250

- C The most outstanding final year thesis or integrated design portfolio by undergraduate students completing the Bachelor of Engineering (Mechanical).

### Wing Commander John Yeaman Prize (Dr J Yeaman)

V \$250

- C The best performance in the teaching courses in Transportation Engineering in Year 4.

### Women in Engineering Award

V \$100

- C The maintenance of academic standards whilst contributing to the academic life at UNSW@ADFA through the mentoring and fostering of excellence amongst other students by a female in the final year of a Bachelor of Engineering or Bachelor of Technology program.

## Postgraduate Prizes

### The Australian Society for Defence Engineering Prize

V \$500

C The prizes will be awarded annually for:

- the most outstanding overall performance of a student completing the Master of Engineering Science degree at UNSW@ADFA, and
- the most outstanding thesis by a postgraduate research student completing a Masters by research or a PhD in an engineering discipline in the School of Aerospace, Civil and Mechanical Engineering or the School of Information Technology and Electrical Engineering, UNSW@ADFA.

### Defence Studies Prize (Petro Fedorchenko Legacy)

V Books to the value of \$200

C The most outstanding academic record of a student completing the Master of Defence Studies program.

### Master of Science in Information Technology Computer Associates Prize

V \$1000

C The most outstanding overall performance of a student completing the Master of Science in Information Technology degree.

### Ria de Groot Prize

V \$500

C The best female postgraduate research student graduating from UNSW@ADFA.

### Stephen Fester Prize

V \$500

C The most outstanding thesis on an information technology related topic by a postgraduate research student completing a Masters by research or a PhD in the School of Information Technology and Electrical Engineering.

### T.F.C. Lawrence Prize

(Canberra Branch of Royal Aeronautical Society)

V \$150 and medal

C Excellence and a significant contribution in a field of aeronautical science by a student completing a Masters or PhD degree at UNSW@ADFA.

## Postgraduate Research Scholarships

### Australian Postgraduate Award (APA)

Stipend: \$18,837 pa (2005 rate)

Available to Australian citizens or to permanent residents for full-time research study. Awarded on the basis of academic excellence and research potential. Applications close 31 October and 30 April.

### Endeavour International Postgraduate Research Scholarship (EIPRS)

Available to overseas applicants. Covers the cost of tuition fees for full-time research study. Awarded on the basis of academic excellence and research potential. Applications close 31 August (S1) and 30 April (S2).

A living allowance scholarship is provided to awardees of EIPRS. Stipend: APA rate plus \$1200 pa.

### University College Postgraduate Research Scholarship (UCPRS)

Stipend: APA rate plus \$1200 pa

Available to students for full-time research study. Awarded on the basis of academic excellence and research potential. Applicants for an APA or EIPRS are automatically considered for UCPRS. Applications close 31 October (S1) and 30 April (S2).

### Equity Scholarships

Awarded to a female student in a non-traditional area of study at UCPRS rates. Applicants for APA, EIPRS or UCPRS are automatically considered for this scholarship.

The full range of UNSW@ADFA scholarships is available at [www.unsw.adfa.edu.au/units/research/PG\\_student/scholarships](http://www.unsw.adfa.edu.au/units/research/PG_student/scholarships)

The full range of UNSW scholarships is available on the website [www.scholarships.unsw.edu.au](http://www.scholarships.unsw.edu.au)

### Other Prizes and Awards

At the end of the third year at the Academy, all midshipmen and officer cadets who have met the military and academic requirements are awarded ADFA graduate status and a University of New South Wales degree.

The third-year midshipman or officer cadet who achieves the highest overall result in military subjects and academic studies and who exerts the most positive and effective influence on his/her peer group, will receive the Commander-in-Chief Medal for excellence in training. The most outstanding third-year midshipman, Army officer cadet and Air Force officer cadet each will be presented with a Chief of Defence Force Prize from their parent Service.

Outstanding individual performances in the various academic streams and individual subjects in all years are rewarded with other prizes which are paid for by public funds, University of New South Wales funds and donations. Prizes and awards are also presented for individual excellence in military subjects and are funded by private donations from individuals and organisations.

# GOVERNANCE AND STRUCTURES

## Agreement between the Commonwealth and the University

In December 2003 a new agreement was signed between the Commonwealth and UNSW for the provision of educational services at ADFA for the next 10 years. Arising from this agreement the Academy Council was discontinued and an advisory council known as the Australian Defence Force Academy Consultative Council was established.

The Agreement affirms and enhances the long-standing and valued relationship between the Australian Defence Organisation and the University and paves the way for a more contemporary, transparent and flexible Agreement for the future delivery of educational services for Defence at the Academy.

## Australian Defence Force Academy Consultative Council

### Membership of the Australian Defence Force Academy Consultative Council

#### Chair

The Hon Justice I.D.F. Callinan  
**Appointed by the Minister for Defence**

#### Members

Commodore J. Goldrick AM, CSC, RAN  
**Commandant Australian Defence Force Academy**

Professor J. Baird  
**Rector, UNSW@ADFA**

Rear Admiral M. Bonser, AO, CSC, RAN  
**Commander Australian Defence College**

Ms C. Harris, PSM  
**The University of New South Wales**

#### *Member appointed by the Council of the University*

Commodore R. Baker, RAN  
**Director General Defence Education & Training Development**

Mrs J. Gordon  
**Member elected by the general staff of UNSW@ADFA**

Air Vice Marshal R. McLennan, AM  
**Deputy Chief of Air Force**

Dr N. Mudford  
**Member elected by the academic staff of UNSW@ADFA**

Major General I. Gordon, AM  
**Deputy Chief of Army**

Professor A. Dooley  
**President of the Academic Board, The University of New South Wales**

Rear Admiral M. Hancock, RAN  
**Deputy Chief of Navy**

Associate Professor G. Collins  
**Presiding Member of the Academic Board of UNSW@ADFA**

Major General W.J. Crews, AO (Retd)  
**Senior retired military member appointed by the Minister for Defence**

Miss Cheryl Rainsbury  
**ADFA Consultative Council Secretary**

## UNSW@ADFA Academic Board

There are five academic Schools at UNSW@ADFA. The Heads of the Schools are appointed by the University Council.

The senior academic body of UNSW@ADFA is the Academic Board. This body functions as a faculty of the University and it reports to the University's Academic Board.

Academic grouping is into three Committees – Undergraduate Education Committee, Postgraduate Coursework Education Committee and the Research Committee - which report to the Academic Board.

The proceedings terms of reference and composition of each committee is available at [www.unsw.adfa.edu.au/governance](http://www.unsw.adfa.edu.au/governance).

### Composition

- The Rector
- The Commandant of the Academy plus one member of the military staff nominated by him or her.
- The professors, associate professors, senior lecturers, lecturers and associate lecturers in the subjects for which UNSW@ADFA is responsible.
- The Academy Librarian.
- Not more than four military members appointed by the Commandant in consultation with the Rector.
- Student representatives.
- The Registrar, or nominee, as Secretary to the Board.
- Such other persons having appropriate qualifications as the University Council may appoint.

### Presiding Member

The Academic Board elects a Presiding Member to chair its meetings and to discharge any other duties which the University Council may assign. The Presiding Member is currently Associate Professor M Frater.

### Terms of Reference

The terms of reference for the Academic Board are generally as set out in Chapter 5 (The Faculties and Deans) of the By-laws of the University and Section 3 of the Rules, in respect of all matters.

**Standing Committees**

The standing committee of the Academic Board is the Executive Committee of the Academic Board.

**Executive Committee of UNSW@ADFA Academic Board****Composition**

- The Presiding Member of UNSW@ADFA Academic Board
- The Rector
- The Commandant of the Academy plus one member of the military staff nominated by him or her
- The Heads of Schools of UNSW@ADFA and Professors of UNSW@ADFA who are not Heads of Schools
- The Presiding Members of the Undergraduate Education Committee, the Postgraduate Coursework Education Committee, and the Research Committee
- The Registrar, or nominee
- Such other persons having appropriate qualifications as the Academic Board may appoint.
- The Associate Dean (Education) and the Associate Dean (Research).

**Function**

The Executive Committee meets as required to consider all business relating to the Academic Board, and it submits to each meeting of the Academic Board recommendations upon matters contained in the agenda.

**Presiding Member**

The Presiding Member is currently Associate Professor G Collins.

**Research Committee****Composition**

- The Presiding Member elected by the Research Committee
- The Presiding Member of UNSW@ADFA Academic Board
- The Rector
- Chair, Research Management Committee
- The Heads of Schools (or nominees) of UNSW@ADFA
- The Research Co-ordinator for each School of UNSW@ADFA
- The Registrar, or nominee
- One person elected by and from each School
- One person nominated by the Presiding Member (to address gender balance)
- One person nominated by the Presiding Member (to represent newer researchers)
- Two graduate students enrolled in research degrees
- The Associate Dean (Research).

**Function**

The Research Committee is responsible for:

- the oversight of research matters (including the allocation of grant funds and recommendations relating to grant applications where necessary);
- matters relating to the candidature of higher-degree students (Doctor of Philosophy, Masters by Research and the research component of the Doctor of Information Technology);
- respective standing committees under authority delegated by the University Council; and
- performing such duties as may be assigned to it by Council on the recommendation of the Academic Board.

**Presiding Member**

The Research Committee elects a member to chair its meetings and to discharge any other duties that may be assigned.

**Postgraduate Coursework Education Committee****Composition**

- The Presiding Member of Postgraduate Coursework Education Committee
- The Presiding Member of UNSW@ADFA Academic Board
- The Rector
- The Associate Dean (Education)
- The Heads of Schools (or nominees) of UNSW@ADFA
- The Registrar, or nominee
- The Postgraduate Coursework Co-ordinator in each School
- One or two persons elected by and from each of the Schools
- Two graduate coursework student representatives

**Functions**

The Postgraduate Coursework Education Committee is responsible for:

- the consideration of all matters relating to the coursework component of the Doctor of Information Technology, masters by coursework, graduate diplomas and graduate certificates of UNSW@ADFA and shall act in accordance with the broad policy indicated by UNSW@ADFA Academic Board;
- action on all matters relating to the enrolment of postgraduate coursework students, other than those matters for which approval has been delegated by Council to the Registrar (or nominee) on the recommendation of the Rector or a Head of School (or their nominees), provided that the action taken shall at all times be in accordance with the policy laid down by UNSW@ADFA Academic Board.

**Presiding Member**

The Postgraduate Education Coursework Education Committee elects a member to chair its meetings and to discharge any other duties that may be assigned.

**The Undergraduate Education Committee****Composition**

- The Presiding Member elected by the Undergraduate Education Committee
- The Presiding Member, Academic Board
- The Rector
- The Associate Dean (Education)
- The Registrar, or nominee
- The Heads of Schools (or nominees) of UNSW@ADFA
- One or two persons elected from each School
- The Undergraduate Co-ordinator from each of the Schools
- One student elected from each of the undergraduate degree streams

**Functions**

The Undergraduate Education Committee is responsible for:

- the consideration of all matters relating to undergraduate degrees and shall act in accordance with the broad policy indicated by UNSW@ADFA Academic Board;
- the implementation of the objectives of the General Education Program within UNSW@ADFA;
- action on all matters relating to the enrolment of undergraduate students, other than those matters for which approval has been delegated by Council to the Registrar (or nominee) on the recommendation of the Rector or a Head of School (or their nominees), provided that the action taken shall at all times be in accordance with the policy laid down by UNSW@ADFA Academic Board.

**Presiding Member**

The Undergraduate Education Committee elects a member to chair its meetings and to discharge any other duties that may be assigned.

**Assessment Review Groups (Undergraduate and Postgraduate)****Composition of each**

- The Presiding Member of the Undergraduate Education Committee or Postgraduate Coursework Education Committee (Presiding Member of the Committee)
- The Presiding Member of UNSW@ADFA Academic Board
- The Rector
- The Registrar, or nominee
- Such other members of UNSW@ADFA Academic Board as UNSW@ADFA Academic Board may appoint.

**Function**

Assessment Review Groups will determine the results of the students in the undergraduate programs or postgraduate coursework programs for which the relevant Committee is responsible and, where appropriate, determines each student's standing in a program.

**Student representation**

Student representation is actively sought on many of the decision making bodies at UNSW @ ADFA. You may wish to become involved in some of the following:

- One student from each of Engineering/Technology, Humanities and Social Sciences, and Science, plus one postgraduate student on the Academic Board
- Two graduate students (enrolled in research degrees) on the Research Committee
- Two graduate students (enrolled in coursework) on the Postgraduate Coursework Education Committee
- Up to five students (elected from each of the academic streams) on the Undergraduate Education Committee
- Students may be invited from time to time to work on School reference groups
- Student-Staff Liaison Committees which operate in each school.

**Structure of UNSW@ADFA****Schools****School of Aerospace, Civil and Mechanical Engineering**

The School presents five degree programs and, for candidates with a BTech(Aero), an Articulation Program to a BE(Aero).

- Bachelor of Engineering in Aeronautical Engineering Program
- Bachelor of Engineering in Civil Engineering Program
- Bachelor of Engineering in Mechanical Engineering Program
- Bachelor of Technology in Aeronautical Engineering Program
- Bachelor of Technology in Aviation
- Articulation Program for BTech(Aero) to BE(Aero)

School of Aerospace, Civil and Mechanical Engineering  
UNSW@ADFA

Australian Defence Force Academy  
Canberra ACT 2600

Telephone: (02) 6268 8269

Facsimile: (02) 6268 8276

Email: info.acme@adfa.edu.au

Website: www.unsw.adfa.edu.au/acme/

## School of Business

The School of Business takes an interdisciplinary approach to teaching and undertaking research on the activities and decision-making processes of organisations, organisational change, interorganisational relationships and the forces shaping the international business environment. The School seeks to work as a learning community and in its teaching programs draws on bodies of knowledge including economics, psychology, organisational behaviour, quantitative and qualitative analysis, ethics, law, and information technology. Its focus is to understand management processes, the determinants of effective leadership, the drivers of interorganisational and international resource flows, the role and influence of markets, and the forces of innovation and change. The School has a strong interest in the generation and transfer of new knowledge and technology and this is reflected in both its teaching and research.

The School has prime responsibility for delivering the Bachelor of Business degree and also teaches major sequences of courses in the BA and BSc in the economics and management disciplines. The School of Business teaches an undergraduate directed studies course in leadership and management, and contributes to the General Education program through an ethics course. At the postgraduate level, the School has for many years taken the lead role in delivering the Graduate Management Studies program, both on campus and in distance education mode. This popular program may be taken in a form which offers a postgraduate education in general management or with a specialised focus on either human resource or technological aspects of management.

In recent years, a number of academic staff in the School have won awards for excellence and innovation in teaching. Teaching in the School is underpinned by a lively program of high-quality research in areas including leadership; the operation of employment markets; nationally and internationally; technological innovation and the spread of new knowledge; defence industry policy and financial management; and the interface between economics and religion.

The School has a strong commitment to providing a stimulating and inclusive environment for its students to acquire well-developed thinking and problem-solving capabilities, an understanding of the challenges of organisational change and an awareness of the economic, social and political forces shaping the international business environment.

School of Business  
UNSW@ADFA  
Australian Defence Force Academy  
Canberra ACT 2600  
Telephone: (02) 6268 8841  
Facsimile: (02) 6268 8450  
Email: info.bus@adfa.edu.au  
Website: www.unsw.adfa.edu.au/sbus

## School of Humanities and Social Sciences

The School of Humanities and Social Sciences offers courses which may be included in the Bachelor of Arts, Bachelor of Science, or Bachelor of Engineering degree programs.

The School brings together four major discipline areas – English, History, Indonesian, and Politics – which focus on developing a coherent understanding of the social and cultural phenomena that comprise our challenging world. Whether they examine the foundations and products of conflict or of cooperation, these disciplines enhance our ability to know ourselves and consequently to lead others.

The School offers students coherent pathways through the various offerings of each of its disciplines. Thus, Indonesian history and politics courses may be combined with Indonesian language. Alternatively, European history and politics may be studied with European literature or film; and a similar combination for Australian politics, literature and history will be possible. American history and literature may be combined with courses in American politics and foreign policy.

The study of social and cultural life in all its complexity benefits from combinations of this sort. Such pathways will lead to a degree that is highly useful for officers of the ADF, providing them with the analytical and critical skills needed both in the immediate region and in the wider world.

School of Humanities and Social Sciences  
UNSW@ADFA  
Australian Defence Force Academy  
Canberra ACT 2600  
Telephone: (02) 6268 8867  
Facsimile: (02) 6268 8879  
Email: info.hass@adfa.edu.au  
Website: www.unsw.adfa.edu.au/hass

## School of Information Technology and Electrical Engineering

The School of Information Technology and Electrical Engineering was formed on 1 July 2003 by the merger of the former School of Computer Science with the former School of Electrical Engineering. The School teaches across a wide range of areas within the undergraduate and postgraduate coursework programs of UNSW@ADFA as well as being extremely active in research.

In the area of Information Technology at undergraduate level, the School offers major and minor plans of study in Computer Science in the Bachelor of Science; major and minor plans of study in Information Systems in the Bachelor of Arts and Bachelor of Science; and a minor in Operations Research and Statistics (in collaboration with the School of Physical, Environmental and Mathematics Sciences), in the Bachelor of Science. The School also provides service courses in Computer Science to all of the Bachelor of Engineering programs at UNSW@ADFA, and will provide courses for the new Bachelor of Business program that is introduced in 2005.

The School offers a full Bachelor of Engineering in Electrical Engineering program that is fully accredited by the Institution of Engineers, Australia. The program gives students a sound understanding of electrical engineering principles (which are supported by complimentary



study in Mathematics, Physics, Computer Science and Management). In the final year, students are able to specialise in their study in areas such as communications, signal processing, control, radar and power systems. Half of the final year of the course is a project undertaken individually by students under the supervision of a member of the academic staff. The School also provides service courses in electrical engineering topics to the other engineering programs.

At the postgraduate coursework level, the School has several active programs available at the Graduate Certificate, Graduate Diploma and Masters levels. These include programs in Information Technology, Electrical Engineering, and Operations Research and Statistics. Each program is made up primarily of coursework although a small research project (equivalent to two courses) is allowed at the Master's level. The School also teaches courses in the Airforce Engineers Retention Scheme Master's program.

The School offers a three year full-time (or part-time equivalent) professional Doctorate in Information Technology which is made up of half coursework with the other half being a research project. The School also offers research Masters and Ph.D. programs in both full-time and part-time mode.

School of Information Technology  
and Electrical Engineering  
UNSW@ADFA

Australian Defence Force Academy  
Canberra ACT 2600

Telephone: (02) 6268 8580 (School Administrator)

Facsimile: (02) 6268 8581

Email: [info.itee@adfa.edu.au](mailto:info.itee@adfa.edu.au)

Website: [www.unsw.adfa.edu.au/itee](http://www.unsw.adfa.edu.au/itee)

## School of Physical, Environmental and Mathematical Sciences

The School of Physical, Environmental and Mathematical Sciences offers courses that may be included in both the Bachelor of Science and Bachelor of Arts degree programs and provides a substantial number of service courses for the Engineering degree programs. The School encompasses the disciplines of Chemistry, Geography, Oceanography, Mathematics & Statistics, and Physics. Majors are offered in all disciplines. In some cases a major program will automatically incorporate courses from other disciplines within the School.

The School contributes to postgraduate courses and runs a variety of short courses for external participants, in particular for defence personnel. There are active research programs with well-equipped research laboratories and infrastructure in all discipline areas. The School offers MSc and PhD programs by research in both full-time and part-time mode.

School of Physical, Environmental and Mathematical  
Sciences  
UNSW@ADFA

Australian Defence Force Academy  
Canberra ACT 2600

Telephone: (02) 6268 8801

Facsimile: (02) 6268 8786

Email: [info.pems@adfa.edu.au](mailto:info.pems@adfa.edu.au)

Website: [www.unsw.adfa.edu.au/pems](http://www.unsw.adfa.edu.au/pems)

## Units and Centres

### The Academic Support Group

The main purpose of the academic support group is to provide client-focused support for the teaching, research, training and administration needs of unsw@ADFA, via three work groups: the Academy Library, educational technology services (ETS) and information communication and technology services (ICTS). Particular services and facilities offered by these groups are described elsewhere in the ADFA Handbook. Further details of the groups are available online:

**Academy Library** (Building 13)  
[www.unsw.adfa.edu.au/library](http://www.unsw.adfa.edu.au/library)

**Educational Technology Services** (Building 13)  
[www.unsw.adfa.edu.au/ets/](http://www.unsw.adfa.edu.au/ets/)

**Information Communication and Technology Services**  
(Building 14)  
[www.unsw.adfa.edu.au/ict](http://www.unsw.adfa.edu.au/ict)

### Business Services

Business Services co-ordinates professional development courses, conferences and seminars using the expertise of academic staff at UNSW@ADFA. The Office also acts as an agency for Newsouth Global Consulting activities, providing access to the skills and knowledge of staff on a commercial basis.

Enquiries should be addressed to Business Services,  
UNSW@ADFA, Canberra ACT 2600.

Telephone (02) 6268 8421

Fax (02) 6268 8690

Email [business.office@adfa.edu.au](mailto:business.office@adfa.edu.au)

Website: [www.unsw.adfa.edu.au/units/busservices](http://www.unsw.adfa.edu.au/units/busservices)

### Research and Research Training Office

The Research and Research Training Office identifies and advertises opportunities for research funding, develops sources of support for the research initiatives of academic staff, fulfils an educational role within the field of UNSW@ADFA's research endeavors and advises and assists academic staff in the preparation of quality grant applications. The office is also responsible for the establishment and management of a range of UNSW@ADFA scholarships.

The Research and Research Training Office:

- Provides strategies and advice on writing applications
- Helps seek funding from appropriate sources
- Liaises with a wide range of funding bodies
- Assists with preparation and submission of applications
- Administers scholarships
- Administers the Postgraduate Research Reviews of Progress Reports
- Organises workshops for researchers and postgraduate research students

Further information, including application procedures and forms are available upon request by email: [d.robinson@adfa.edu.au](mailto:d.robinson@adfa.edu.au)

In addition, the Research and Research Training Office at UNSW@ADFA works very closely with the UNSW Kensington Research Office, which maintains a continuously updated site at [www.ro.unsw.edu.au](http://www.ro.unsw.edu.au). This site is used to advertise seminars, give updates on granting bodies, closing dates and other relevant and useful material. The site also has links to a variety of forms, budget information and application kits, infrastructure levy, salary rates, on-costs, and research codes.

The Research and Research Training Office also works closely with the new Graduate Research School on the main campus to provide support to postgraduate research students.

The Manager, Research Office  
UNSW@ADFA  
Australian Defence Force Academy  
Canberra ACT 2600

Telephone: (02) 6268 8497  
Facsimile: (02) 6268 8690  
Email: [d.robinson@adfa.edu.au](mailto:d.robinson@adfa.edu.au)  
Website: [www.unsw.adfa.edu.au/units/research/](http://www.unsw.adfa.edu.au/units/research/)

## Student Administrative Services

The role of Student Administrative Services (SAS) is to provide quality administration to support and promote the academic programs of students and to enhance their educational experience at UNSW@ADFA.

The core functions of SAS are:

- Facilitating student admission, enrolment, timetabling, academic progression & advice, assessment processing and graduation.
- Providing information through a central enquiries office, orientation sessions, Open Day and co-ordinating and compiling UNSW@ADFA's Handbook, recruitment and information guides for students.
- Undertaking student welfare activities through the provision of formal and informal functions and events and the provision of pastoral care and advice.
- Facilitating the smooth operations of the governance of the University College through the provision of secretariat support services.

For any enquiries regarding study at UNSW@ADFA, please contact Student Administrative Services:

Telephone: (02) 6268 6000  
Facsimile: (02) 6268 8666  
Email: [sas@adfa.edu.au](mailto:sas@adfa.edu.au)

Postal Address:  
Student Administrative Services, UNSW@ADFA  
Australian Defence Force Academy  
Canberra ACT 2600

## Unisearch Limited

Unisearch Limited is the commercial company of The University of New South Wales which provides the services of the University's academic staff for consultancies and research projects, manages the commercialisation of the intellectual property of the University and offers a wide range of specialised training courses.

Unisearch supports the academic staff in providing such services by managing commercial aspects which include marketing, contracts, order administration, report production, debt collection, finance and professional indemnity liability control.

The Company is a wholly owned subsidiary of The University of New South Wales, and surpluses from the Company's operations return to the University to further its objectives and work in the community.

All enquiries should be addressed to Unisearch's Representative at UNSW@ADFA,

Maria Beckett, UNSW@ADFA, Canberra ACT 2600.  
Telephone: (02) 6268 8288,  
Facsimile: (02) 6268 8690  
Email: [unisearch@adfa.edu.au](mailto:unisearch@adfa.edu.au)

## Other Services on Campus

There is a number of other services and facilities on campus including the Bookshop, Cadet's Mess, Coffee Shop, Defcredit, the other Defence Credit Union, Equity Office, Hairdresser, Indoor Sports Centre, Officer's Mess, Occupational Health and Safety, and the Staff Development Office.

For further details on these services, please access the listings under Student Support Services at [www.unsw.adfa.edu.au/student/](http://www.unsw.adfa.edu.au/student/) or [www.unsw.adfa.edu.au/staff/](http://www.unsw.adfa.edu.au/staff/) (as appropriate).

## Staff

### Central Administration

#### Office of the Rector

##### Rector

Professor John Patrick Baird, BSc PhD ANU

##### Associate Dean Education

Associate Professor Stephen Ross Yeomans, BSc PhD UNSW, CPEng, MIEAust, MIMMA

##### Associate Dean Research

Professor Joseph Cho Sam Lai, BSc(Eng) H.K., MEngSc PhD Qld., CPEng, FIEAust, SMAIAA, FAAS

##### Presiding Member of UNSW@ADFA Academic Board

Associate Professor Michael Robert Frater, BSc BE Syd., PhD ANU, MHed UNSW, MIEEE

##### Manager Planning and Reporting

Melissa Pollard, BSocSc Qld.

## Rector's Office Manager

Tania Finn

## Administrative Officer

Tess Blakers

## Public Affairs Manager

Mike Palmer-Allen, GradDip(MarComm) *Canb.*

## Student Recruitment Manager

Mark Priddle, BATourism GradDip(MarComm) *Canb.*

## Directorate of Finance, Personnel and Planning

### Director, Finance, Personnel and Planning

Laurence John Olive, BSc *N.E.*, MSc *Tas.*, GradDipProf Account *Canberra CAE*.

### Office Manager

Debra Furphy

### OHS and Facilities

Suzanna Holmes, BAppSc(Physio) MComm *Syd.*

## Financial Services

### Manager Financial Services

Anthony Yager, BCom *Canberra, CAE*

### Assistant Manager Financial Services

Robert Smith, BBus(Acc) *CSU*

### Finance Officer

Vicki King

### Finance Clerks

Anita Berresford  
Scott Staruszkiewicz

### Cashier/Purchasing Officer

Shay Manners

### Assets Officer

Gerry Coogan

### Stores Officer

Canh Do

## Human Resources

### Manager Human Resources

Rosemaree Michele Laurie, BA *Tas.*, AFAHRI

### Human Resources Officers

Mavis Comer  
Tracey Coombes

### Human Resources Administrator

Jacqui Jillard

### Staff Development Administrator

Anne Green

### Equity Manager

Poppy Maclean, BA *ANU*

## Research and Research Training Office

### Manager Research Office

Danica Robinson, BSc *North Western*

### Administrative Assistant

Geoff Brooks

### Administrative Assistant

Vacant

## Business Services

### Manager Business Services

Maria Beckett, GDSE *UWS*

### Office Manager

Carrie Wright

### Administrative Assistant

Michelle Davidson

### Short Course and Events Co-ordinator

Erin Varker

## Student Administrative Services

### Manager, Student Administrative Services

Julie Lines, BA MBA, *Qld.*, Personnel Management (Advanced Certificate) *NSW Tafe*.

### Acting Manager, Student Administrative Services

Peter O'Halloran, JP, AIMM, MAICD

### Acting Deputy Manager, Student Administrative Services

Dani Johnson, BA *UNE*

### Administrative Support Officer

Suzette Heffernan

### Client Service Officers

Karen Lees  
Owen Litchfield, BA (LibInfStud) *Canb.*  
Raeleigh Rogers

Chris Strong

### Contracts Officer

Jenine Woodman

### Team Leader (Client Service)

Usha Narayan, MA(Eco), *Uni. Sth Pacific, Fiji*

### Academic Support Officer

Vivienne Zelig, BA MLit *ANU*, GradDipDes *UTS*

### International and Research Students Officer

Tatiana Romanovsky, BA GradDip(PE) *Auck.*, MAAPD *ANU*

### Student Systems Officer

Pauline Baragry

### Team Leader (Administrative Services)

Vacant

## Academic Support Group

### Director

#### Director Academic Support Group and Academy Librarian

Cliff Law, BA(Hons) *Qld.*, AALIA

#### Business Manager

Sally Hudson

## Academy Library

### Manager, Academy Library

Janice Margaret Gordon, BA *W.Aust.*, GradDipAdvils *Curtin*, AALIA

#### Senior Librarians

Patricia Susan Beatty, BA *Melb.*, DipEd *Melb.* T.C., GradDipLib *Canberra CAE.*, AALIA

Christine Margaret Fulton, BA (LibInfStud) GradDipArts (InfStud) *Canb.*, MA *UNSW*, AALIA

#### Liaison Librarians

Christopher Mark Dawkins, BA *UWA.*, MDefStud *UNSW*, GradDipLib *W.A.I.T.*, AALIA

Sevilay Esat, BA *ANU.*, GradDipLib *Canberra CAE.*, MPA *Canb.*, DipIt *C.I.T.*, AALIA

Anna Papoulis, BA(LibInfStud) *Canberra CAE*

Annette Scarvell, BA *CQU*, GradDip(LibInfoMngmt), MBA *Canb.*, AALIA

#### Technical Services Librarians

Patrick Thomas George Dominick, BA(LIS) *Riverina CAE*

Janet Perfrement, BA *Adelaide*, GradDipLib *Canberra CAE.*, AALIA

Sylvia Aldred, BA(Lib) *Canberra CAE*

#### Technical Services Officers

Pauline Berwick

Elfie Gahan, DipLibInfoServ, *C.I.T*

Wendy Van Buuren

Hung Bui

#### Acquisitions/Course Reserve Co-Ordinator

Marilyn Dunbar, BA *Melb.*, DipLib *RMIT*

#### Senior Bibliographic Records Officer

Steven Cremer, LibTechCert *Canb Tafe*, ALIATech

#### Inter-Library Loans Supervisor

Edith Hackworthy, LibTechCert. *Newcastle Tafe*, ALIATech

#### Inter-Library Loans Officer

Mary-Jane Burk

#### Client Services Supervisor

Glenn Large, BA(LibInfStud) *Canb.*, AALIA.

#### Client Services Officer

Danielle Archer, LibTechCert, Dip *Hobart Tafe*

#### Client Services Assistant

Patsy Sheather, BA (AustStudies) *ANU*

#### Client Services Assistant

Hayward Maberley

#### Systems Manager

Vijeeth Shakespeare, IDPM(Fellow)

#### Systems Officer

Lyn Christie

#### Indexer, Austlit

Tessa Wooldridge, BA *ANU*, GradDipEd *Canberra CAE.*, GradDipLibInfoMngmt *Canb.*

#### Indexers

Lesley Banson, LibTechAssDip, *C.I.T*

Jennifer Huntley, BA(LibInfoSci) *Canb.*

Jane Rankine, BA *W.A.I.T.*, GradDipLib *Canberra CAE*

#### Special Collections Co-ordinator

Wilgha Edwards, Assoc.Dip Library Services, *C.I.T*

#### Special Collections Assistant

Rose Bowman

#### Office Manager

Karyn Warner

#### Administrative Assistant

Vicky Hudson

## Educational Technology Services

### Manager ETS

Allan Herrmann, BSc, DipEd *Qld.*, Med *UNE*

#### Office Manager

Rachel Hunter, DipAppArts *C.I.T*

#### Office Administrator

Michelle Leonard

#### Senior Designer

Trish Boaden, DipBMgt *ABA*

#### Graphic / Web Interface Designer

Kurt Barnett, AdvDipDigImgProc *C.I.T*

#### Desktop Publisher

Clayton McGuire

#### Document Production Officer

Barry Freebody

#### Educational Developer

Wanda Jackson BA, DipEd *UNE*, BIT *NTU*, BEDStud(Chip) *Melb.*, GDipAppLing *NTU*

#### Off-Campus Program Manager

Morgan Smith, ACSIT

## Video Producer

Robin Murden, CertBusStudies *UTS*

## Photographer

David Paterson, M.Photog, Hon L.M.Aipp, AssDipArts (Phot) *C.I.T*

## Off Air Recording Officer

Andrew Playfair

## Senior Venue And Infrastructure Officer

Ray Draper

## Venue And Technical Support Officer

Bill Keegan, AssocDipEng (Elect), ACTAA

## Infrastructure And Document Production Assistant

Toby Keen (parental leave until August 2006)

## Infrastructure Assistant

Keith Massey (until August 2006)

## Information Communication And Technology Services

### Manager

Tony Ablong, MBus, GradDip(Bus,Admin), BBus *Curtin*, BSc, FAIM, FACS

### Administrator

Alison Barry, ACIS

### Senior Systems and Network Engineers

Vacant

### Systems and Network Engineers

Phillip Berrie, Bappsc *Q.I.T.*, MScInfs, *UNSW*

Stephen Meatheringham, BSc *Adel*, PhD *ANU*

### Client Services Manager

Nenad Stefanovic

### Client Services Officers

Barry Bosanac

Marcus Robson

Stacey Velstra

### Client Services Team Leader

Tanuj Rastogi, MScIT *UNSW*

### Senior Systems Developer

Bernard Lineham

### Systems Developers

Anthony Cheung, BE *Canb.*

Zulqarnain Ahmad

## Schools

## Aerospace, Civil and Mechanical Engineering

### Head of School

Warren Ferrers Smith, BE (Nav Arch) *UNSW*, MS PhD *Houston*, MSNAME, MRINA

### Professor

Joseph Cho Sam Lai, BSc(Eng) *H.K.*, MEngSc PhD *Qld.*, CPEng, FIEAust, SMAIAA, FAAS

### Associate Professors

Stephen Ross Yeomans, BSc PhD *UNSW*, CPEng, MIEAust

Sik-Cheung Robert Lo, BSc *H.K.*, PhD *UNSW*, MICE, MStructE, CPEng, MIEAust, MHKIE

### Senior Lecturers

Gary Frank Barker, BE *Swinburne*, MEngSc *UNSW*, CPEng., MIEAust., psc

Russell Boyce, BSc(Hons) PhD *ANU*, MAIAA

Rajah Gnanendran, BSc *Per'ya*, MEng *Carleton*, PhD *W.Ont.*, DipUniTh *New Br.*, MICE, PEng

Michael John Harrap, BE *Melb.*, PhD *UNSW*, CPL

Rikard Benton Heslehurst, BE MEng *R.M.I.T.*, PhD *UNSW*, CPEng, FIEAust, SMAIAA, MSAMPE, MSAE, MACSS

Obada Kayali, BE *A.U. Beirut*, MSc PhD *Strath.*, CPEng, MIEAust

Harald Hermann Kleine, Dipl. – Ing, Dr. – Ing. *RWTH*

Raymond Lewis, BBSc(Hons) *LaTrobe*, ATPL(1<sup>st</sup> Class)

John Frederick Milthorpe, BSc BE MEngSc PhD *Syd.*, MDefStud GradDipHed *UNSW*, SMAIAA

Neil Robert Mudford, BSc(Hons) PhD *ANU*

Andrew James Neely, BE(Hons) MEngSc PhD *Qld.*, CEng, MRAeS, SMAIAA

Robert Kenneth Niven, BSc PhD *UNSW*, MRACI

Krishnakumar Shankar, BTech I.I.T. *Madras*, MSc PhD *Tas*, GradDipHed *UNSW*, CPEng, MIEAust.

Anavatti Gopalarao Sreenatha, BE PhD *I.I.Sc*

Anthony Thomas Webb, BSc BE *Syd.*, MEngSc PhD *UNSW*, DipHydEng *Delft*, MAMSA, MIAHR, CPEng, MIEAust

Alan Stephen White, BTech *Adel.*, MBldgSc *Melb.*, ISFE, AIA & MA, IFMA, FMAA

Eric Stein Wilson, BSc, BE *Syd.*, MSc(Aerospace), *Cranfield*, GradDipMgtStudy, *RAAF Staff College*

### Lecturers

Susan Burdekin, BSc, GradDipPsych *ANU*, CPL, MRAes, MEAAP, MAAvPA, MISASI

Matthew Adam Garratt, BE *Syd.*, GradDip AppCompSci *UCQ*

Gerhard Horoschun, BE MEngSc *Melb.*, Grad IEAust

Tapabrata Ray, BTech, M.Tech, PhD *Indian Institute of Technology*

Murat Tahtali, MSc *Mid.East. T.U.*, MASME

John Young, BE *Syd.*, MA(Eng) *Princeton*

#### Research Officers

Marion Anne Burgess, BSc *Syd.*, MSc *UNSW*, FAAS

Frank Edward Irons, BSc PhD *Syd.*

#### Adjunct Senior Lecturers

Martin Brett Aubury, BSc *S'ton*, CEng, FRAeS

Alan Fien, BSc *Qld.*, BE *Syd.*, MAHS

#### Emeritus Professor

Robert Kirby Duggins, BSc *Lond.*, PhD *Nott.*, CPEng, FIEAust, MIMechE

#### Visiting Senior Research Fellow

Sudhir Laxman Gai, BE *Karn.*, MSc *Belf.*, PhD, DEng(Brist), CEng, FRAeS, AFAIAA

#### Visiting Fellows

Bruce Wilfrid Golley, BE *Adel.*, MSc, PhD *Qu.*, CPEng, FIEAust

Muhammad Naseer Haque, BSc *W.Pak. Eng.*, MEng *A.I.T. Bangkok*, PhD *UNSW*, CPEng, FIEAust, MACI

Keith Thomas Linard, BE BCom BTRP Dip TRP *Melb.*, GradDipEd *ANU*, CPEng, MIEAust, MAES, MISDS

#### Honorary Military Fellow

Bruce Baden Hughes, CSM, BE *Qld*, CPEng, MIEAust

#### Executive Officer

Carol O'Brien

#### Student Administration

Gill Taylor, Undergraduate

Nadia Seselja, Postgraduate

#### School Administration

Vera Berra

### Business

#### Professor and Head of School

Peter Henry Hall, MA MPhil *Oxf.*, FAIM

#### Associate Professor

Iain Leonard Densten, BBus(BusAdmin) BBus (Hons), PhD *Monash*

Stefan Markowski, MScEcon *Warsaw*, PhD *Lond.*

#### Senior Lecturers

Cheah Hock-Beng, MSocSc *Sing.*, MPhil DPhil *Sus.*

Antonius Wilhelmus Gerardus Maria Huybers, Dipl *HEAO Sittard*, Drs(Econ) *Limburg*, PhD *UNSW*

Gary Richard Lea, LL.B *Brunel*, LL.M *Lond.*, MPhil *Cardiff*

Gary Josef Manger, BA MCom PhD DipEd *UNSW*, FAIM

Frances Myfanwy Miley, BComm LL.B *UNSW*, MEc *NE*, PhD *W'gong*

Paul Oslington, BEc *Macq*, BD MCD, MEc PhD *Syd.*

Keiran Anthony Sharpe, BEc MEc *Syd.*, PhD *Canb.*

Massimiliano Tani, MSc (Econ) *Lond.*, PhD *ANU*

James Raymond Warn, BA DipEd *Melb.*, GradDipMgt *C.Q.U.*, PhD *LaT.*, MAPS, AIMM

#### Lecturers

Edward Antoniak, BA (*Milstud*) *UNSW*, BEc *ANU*, MInfSc (*UNSW*)

Elizabeth Barber, BA MEconSt *Qld.*

James Matthew Hanson, BSc, DipEd *Syd.*, MA, MBA *Yale*

Sharon Jackson, BA *N'cle (N.S.W.)*, MEc *ANU*

Angela Knox, BSc, MComm, PhD *Melb.*

Jung-Soo Seo, BEc *Seoul*, MCom PhD *UNSW*

Howard Garrett Upstill, MSc (Econ) *Lond.*, BA BSc, MSc *Melb*

#### Associate Lecturers

Jason Mazanov, BSc *ANU.*, BAppPsych *Canb.*, PhD *ANU*

#### Visiting Senior Research Fellow

Robert Vincent Jackson, BEc PhD *Syd.*

#### Visiting Fellows

Tony Fu-Lai Yu, BA *Tenn.*, MSc *Iowa*, MPhil *H.K.*, PhD *UNSW*

Rev. Paul Anthony McGavin, BA *N.E.*, MEconSt *Qld*, ThDip *Aust.Coll.Theol.*, Theo.M(Hons) *MCD*, PhD *Melb.*, ASA, AIMM, MACE

David Shackleton AO, GradDipMgmt, MBA *Monash*, AFAIM

Peter Noel Walsh, BSc *N'cle (N.S.W.)*, BA *UNSW*

Robert Wylie, BA(Hons) *Qld.*

Stuart Max Whitten, BAgEC(Hons) *UNE*, MPhil *Cambridge*, PhD *UNSW*

#### Research Assistant

Rissa Raymundo, BEc *Phils.*, MEc *Macq*

#### Manager, Information Systems & Equipment

Tom Bryson, MACS PCP

#### School Administrator

Liz Robinson

#### Executive Officer

Brad King, BA Tourism, GradDipSys, MBA *Canb*, AIMM

Staff – School of Humanities and Social Sciences

## Humanities and Social Sciences

### Associate Professor and Head of School

Robin Prior, BA PhD *Adel.*

### English Program

#### Professors of English

Bruce Harry Bennett, AO, BA DipEd *W.A.*, MA *Oxf.*, MA *Lond.*, FAHA, FACE

Paul Raymond Eggert, BA *Syd.*, MA *Melb.*, PhD *Kent.*, FAHA

#### Associate Professor

Susan Patricia Lever, BA *ANU*, MA PhD *Syd.*, GradDipLib *Canberra CAE*.

#### Senior Lecturers

Jeffrey Cameron Doyle, BSc BA *Syd.*

Heather Lucy Elizabeth Neilson, BA *Melb.*, DPhil *Oxf.*

#### Lecturers

Fiona Mary Cotton, BA *Flin.*, Dip Ed *Adel.*, RSA Cert TEFL, MApplIng *Macq.*

#### Emeritus Professor and Honorary Visiting Fellow

Harry Payne Heseltine, AO, BA *W.Aust.*, MA PhD *Louisiana State*

#### Honorary Visiting Fellows

Bryan Edward Coleborne, BA Dip.Ed. M.Litt MA *UNE*, PhD *Dublin*

Adrian David Caesar, BA PhD *R'dg.*

David John Headon, MA DipEd *Syd.*, PhD *Br.Col*

Roger S. Osborne, BA *New Orleans*, PhD *UNSW*

Geoff Page, BA DipEd *N.E.*

### History Program

#### Professors of History

Peter John Dennis, AM, BA *Adel.*, MA PhD *Duke*, DipT(Sec) *Adel.*, T.C., FRHistS

Jeffrey Guy Grey, BA *ANU*, PhD *UNSW*

#### Associate Professor

Stewart Lone, BA *Lond.*, PhD *ANU*

#### Senior Lecturers

David Blaazer, BA PhD *LaT.*

Francis Cain, BA MA *Adel.*, PhD *Monash*

Eleanor Hancock, BA PhD *ANU*, MA *V.U.W.*

#### Senior Lecturer and Osborne Fellow in Naval History

John Reeve, MA *Melb.*, PhD *Camb.*, FRHistS

#### Lecturers

Linda Bowman, BA *Pomona*, MA PhD *Calif.*

Nicola Baker, BA MA *Auck.*, MA PhD *ANU*

#### Associate Lecturer

Debbie Lackerstein, BA *Adel.*

### Visiting Fellows

John Coates, BA *W.A.*, MA *ANU*, AC (Mil), MBE

Christopher Clark, BA, MA, PhD *UNSW*

Ashley Ekins, BA *Adel.*

Peter Londey, BA *UNE*, PhD *Monash*

John McCarthy, BA *Qld.*, MA *UNSW*, PhD *ANU*

Kathryn Spurling, BA *ANU.*, MA *UNSW*, PhD *UNSW*

Peter Stanley, BA *ANU.*, Dip. Ed., *Canberra C.A.E.*, Litt.B, PhD *ANU*

Alan Stephens, BA LittB *N.E.*, MA *ANU*, PhD *UNSW.*

Gerald Walsh, MA DipEd *Syd.*, MA *ANU*

### Visiting Professors

Robert O'Neill AO, BE *Melb.*, MA, D.Phil. *Oxon.*

### Indonesian Program

#### Senior Lecturer

Minako Sakai, BA MIntStud *Sophia*, GradDipArts PhD *ANU*

#### Lecturers

Edwin Jurriens, MA PhD, *Leiden*

Ida Nurhayati, BDra *Satya Wacana*

Paul Tickell, MA *Monash*

### Politics Program

#### Professors

James Cotton, BA *Flin.*, MA *Durham*, MSc(Econ) PhD *Lond.* FRAS

Carlyle Alan Thayer, AB *Brown*, MA *Yale*, PhD *ANU*

#### Associate Professors

Anthony Samuel Bergin, BA LLB *Monash*, MA PhD *ANU*

David William Lovell, MA *Flin.*, PhD *ANU*

Aurelia Dorane George Mulgan, BA *Auck.*, MA *Well.*, PhD *ANU*

#### Lecturers

Gavin Mount, BA *Melb.*, MA PhD *ANU*

John Walker, BA *Qld.*, PhD *UNSW*

Jian Zhang, MSc *Zhejiang*, PhD *Murdoch*

#### Visiting Fellows

Peter Edwards, BA *UWA*, DPhil *Oxf.*, PhD *Adel*

Malcolm Hugh Mackerras, BEc *Syd.*

William Hugh Smith, BSc(Econ), MPhil *Lond.*, PhD *ANU*

#### Administrative and Research Staff

Marilyn Anderson-Smith

Susan Cowan, MA *ANU*

Bernadette McDermott

Shirley Ramsay

**Executive Officer**

Jo Muggleton

**Information Technology Officer**

Vacant

**Information Technology and Electrical Engineering****Professor of Electrical Engineering and Head of School**John Fredrick Arnold, BE MEngSc *Melb.*, PhD *UNSW*, FIEAust, SMIEEE, CPEng**Professor of Electrical Engineering**Ian Richard Petersen, BE *Melb.*, MSEE PhD *Roch.*, FIEEE, FIEAust, MSIAM, CPEng**Associate Professors**Hussein Aly Abbass, BSc BA PG-Dip MPhil *Cairo*, MSc *Edinburgh*, PhD *QUT*, MORS, MASOR, MISGEC, MIEEEDonald Fraser, BE PhD *Syd.*, SMIEEE, MIEAust, MACS, MINNS, MAPRS, CPEngMichael Robert Frater, BSc BE *Syd.*, PhD *ANU*, MHed *UNSW*, MIEEELal Chand Godara, BE *B.I.T.S.*, M Tech *I.I.Sc.*, PhD *N'cle (N.S.W.)*, M.Hed *UNSW*, SMIEEE, FASAHemanshu Roy Pota, BE *S.Gujarat.*, ME *I.I.Sc.*, PhD *N'cle (N.S.W.)***Senior Lecturers**Frantz Clermont, BSc MSc *Polytech. Univ. N'York*, PhD *ANU*Michael Glynn Barlow, BMath *W'gong*, PhD *UNSW*Lawrence Peter Brown, BSc *Monash*, PhD *UNSW*, MIEEE, FBISDavid John Cornforth, BSc(Hons) *Nott. Trent*, PhD *Nott*Robert Ian Faulconbridge, BE MEngSc *UNSW*, MBA *USQ*, CPEng, SMIEEE, MIEAust, SESAGraham Freeman, BSc PhD *Qld.*Elanor Harriet Huntington, BSc PhD *ANU*, MIEEEAndrew John Lambert, BSc(Hons) *Otago*, PhD *UNSW*, MSPIEEdward James Essington Lewis, MACM, MAIS, MISACA, BSc PhD *N'cle (N.S.W.)*Christopher John Lokan, BSc PhD *ANU*, MACM, MIEEEAlan McLucas, BE(Hons) MMgtStud PhD *UNSW*, CPEng, SDS, SESA, MIEAust, qtcGregory Neville Milford, BE *Qld.*, MEngSc *UNSW*, PhD *UNSW*, MIEEEValeri Ougrinovski, MSc PhD *Nizhny Novgorod*, SMIEEEMark Richard Pickering, BE *C.I.A.E.*, ME PhD *UNSW*, MIEEEMichael John Ryan, BE MEngSc PhD *UNSW*, GradDipMgtStud *A.C.T.A.A.*, MIEAust, MIEEE, SMIEEE, AIMM, SESA, CPEng, psc, temRuhul Sarker, BSME MIPE (BUET, *Dhaka*), PhD (DalTech, *Halifax*), MIEEE, MASOR, MINFORMSWeiping Zhu, B.Eng *Hunan*, M.Eng *CUMT*, PhD *UNSW*, MIEEE**Lecturers**Cecilia Marie Andrews, BA GradDipInfoTech *UNSW*Daryl Essam, BSc *UNE*, PhD *UNSW*Xiuping Jia, BEng *Beijing*, PhD *UNSW*, SMIEEE*Qld.* Gary Millar, BSc DipEd *Flin.*, GradDipCompStud *Canberra CAE*, MInfSc *UNSW*, MPA *USQ*Timothy Leonard Turner, BA Computing *Canberra CAE*, MBA *Canberra*, GradDip E-Commerce *Monash*, GradCert *UniLearning & Teaching UNSW*, MACS, MIEEE, AIMM, MAIS, MIPAA**Associate Lecturers**Jennifer Mary Backhouse, BA DipEd *Syd.*, MInfSc *UNSW*, MACSMichael John Ford, DipMechEng *RMIT*, MInfSc *UNSW*, FIEAust, CPEng**Emeritus Professor**Charles Sinclair Newton, Cand Scient *Copenhagen*, PhD *ANU***Visiting Fellows**Geoffrey Cochrane, BSc *Lond.*, PhD *N.E.*, CPhys, MInstP, SMIEEERobin Malcolm Dunbar, BSc DipIER MSc *Edin.*, PhD *Heriot-Watt.*, FIEE, MSUT, CEng**Qld.Honorary Military Fellow**Lt Trevor Wheatley, BE(Hons) *UNSW***Research Associates**Reza Sayyah Jahromi, MSc *UNSW*, MIEEE**Research Officer**Zheng Zhitao, MSc *Peking***Research Assistant**

Manoranjan Paul

**Executive Officer**

Dimitra Andriopoulos

**Administrators**

Elizabeth Carey

Pamela Giannakakis

Joan Woodward



## Technology Support Team

(for the School of Aerospace, Civil and Mechanical Engineering and School of Information Technology and Electrical Engineering)

### TBA, Manager, Information Systems Group

Adrian Bishop, Senior Engineer, Professional Engineer and Electronics Workshop

Tony McCarthy, Workshop Manager, Mechanical Workshop Group

Ian Leves, CertMatTesting Syd TAFE, AssDipSci OH&S, C.I.T., Manager Laboratory Group

## Physical, Environmental and Mathematical Sciences

### Associate Professor and Head of School

Dennis John Isbister, BSc MSc *Indiana*, PhD *UNSW*, FAIP

### Professors

William Gregory Jackson, BSc PhD *Melb.*, FRACI, CChem

Brian George Lees, BA PhD *Syd.*

Roger Fairbairn McLean, MA *N.Z.*, PhD *McG*

Colin Pask, BSc *Lond.*, PhD *UNSW*

Rowland Alexander Sammut, BSc *UNSW*, PhD *ANU*

### Associate Professors

John Grant Collins, BSc PhD *ANU*, MRACI, CChem

Jacqueline Carmel Croke, BSc PhD *Dublin*

Warrick Andrew Lawson, BSc MSc PhD *Cant*

Hans Albert Riesen, Lic phil nat, Dr phil nat *Berne*

Ravinder Kumar Sood, BSc PhD *Lond.*, DIC, MIAU, FASA, FAIP

Glen Alan Stewart, BSc PhD DipEd *Monash*, FAIP

Rodney Oscar Weber, BSc *Melb.*, PhD *Tas.*

Clifford Edwin Woodward, BSc PhD *Syd.*, Doc *Lund.*

### Senior Lecturers

Geoffrey Karl Aldis, BSc(Med) *Syd.*, BA BMath *W'gong.*, PhD *Camb.*

Wendy Rosemary Anderson, BSc *Lond.*, MSc *Dund.*, PhD *UNSW*

Glenn Adrian Banks, MSc *Cant.*, PhD *ANU*

Steven Ian Barry, BSc *Adel.*, PhD *UNSW*

Vincent Alistair Drake, MA DPhil. *Oxf.*, GradCertHED *UNSW*, MAIP

Peter Donald McIntyre, BSc PhD *ANU*

Geoffrey Norman Mercer, BSc PhD *Adel.*

Garry Robinson, BSc PhD *Melb.*, ARMIT

Harvinder Singh Sidhu, BSc PhD *Qld.*, DipEd *S'pore.*

Robert Gordon Smith, BSc PhD *Melb.*, MASA, MIAU

Paul Joseph Tranter, BA PhD *N'cle (N.S.W.)*

### Lecturers

Joanne Chapman, BSc PhD *Lancaster*

Mark Francis Collins, BSc *Syd.*, MSc *Kent*, PhD *UNSW*

Amy Louise Griffin, MSc PhD *Pens*

Wayne Douglas Hutchison, BSc PhD *UNSW*, MAIP, MVSA

Zlatko Jovanoski, BSc *Monash*, PhD *UNSW*

Andrew Kiss, BSc PhD *ANU*

David John Low, BSc PhD *Adelaide*, MAIP, MAMOS, MAGU

David James Paull, MA *Adel.*, PhD *UNSW*

Abul Fazal Mohammad Mokhlesur Rahman, MSc *Rajsh.*, Dipl Chem, Dr rer nat *Regensburg*, MRACI, CChem

Robin Ann Robertson, BSc *Florida*, MSc *Rhode Is.*, PhD *Oregon*

Scott Sharpe, BSc(Hons), PhD *Macq*

Ingrid Takken, PhD *K.U.Leuven (Netherlands)*

John Robert Taylor, BSc PhD *ANU*, MAIP, MAGU

Richard Thain, BSc *Southampton*, PhD *Plymouth (UK)*

Heiko Timmers, Dipl Phys *Munich*, PhD *ANU*, MAIP, MIOP, MDPG

Isaac Nikolaos Towers, BSc *Otago*, PhD *UNSW*

Lynne Wallace, BSc *Edin.*, PhD *ANU*

Xiao Hua Wang, BSc *Shandong*, PhD *James Cook*

### Associate Lecturers

Barbara Rae Catchpole, BSc *W'gong.*, DipEd *Canberra CAE*

Jiashu Shen, BSc *East China*, PhD *W'gong*

### Emeritus Professor

Stewart James Campbell, BSc *Aberd.*, MSc *Salf.*, PhD *Monash*, CPhys, FInstP, FAIP

### Visiting Fellows

Terence Grant Birtles, BA Dip Ed *QLD.*, MA *Syd.*, Dip Crim *Camb.*, Dip Internat. Law *ANU*

Edward Arthur Catchpole, BSc *Lond.*, MSc *Kent*, PhD *Dund.*

Donald Hugh Chaplin, BSc PhD *Monash*, FAIP, MIIR

John William Doyle, BSc *McG.*, MA *ANU*

Albert Vernon John Edge, BSc PhD DipEd *Lond.*, DipAdmin *Canb.*, ARCS, DIC

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# ALUMNI

## UNSW@ADFA Alumni

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Website: [www.unsw.adfa.edu.au/student/alumni/](http://www.unsw.adfa.edu.au/student/alumni/)

UNSW@ADFA Alumni offers graduates the opportunity to stay in touch with The University of New South Wales at the Australian Defence Force Academy as well as their fellow alumni and to benefit from that connection.

UNSW@ADFA offers a number of options for graduates to stay in touch with UNSW@ADFA. For Defence personnel, graduates can choose to join the Academy Graduates Association (AGA). In addition, all UNSW@ADFA graduates are not only part of the UNSW@ADFA Alumni, but also the UNSW Alumni Association. Graduates can choose to join the UNSW Alumni Association Member Benefit Program which offers exclusive services, activities and discounts for subscribing alumni to add value to their relationship with UNSW. Subscriptions and contributions to the Program help the UNSW Alumni Association support initiatives such as special events, activities, scholarships and awards.

## Academy Graduates Association

The Academy Graduates Association (AGA). The vision of the Academy Graduates Association (AGA) is to be renowned as a worthwhile and beneficial association for graduates of the Australian Defence Force Academy. The mission of the AGA is to provide an avenue for graduates to develop an information and education network which will benefit association members and AGA sponsors. The endstate for the association is to attract at least 75% membership from all graduating classes.

## Services and Support

The AGA intends to focus its services and support at the individual member. The way in which it will achieve this is as follows:

- the establishment and improvement of an AGA specific website with restricted access, with the provision of an up to date list of contact details for its members;
- taking a commercial approach to the association and engendering an atmosphere in which networking and advertising is encouraged.
- enhanced support to major activities ie. reunions;
- provision for both serving and ex-serving members to utilise the association to promote products and services which are of benefit to all members; and
- enhancing visibility to those companies that support the association.

## Funding

The AGA is a non-profit association, which raises revenue through two main sources, membership subscription and corporate sponsorship. Corporate sponsorship provides approximately 75% of total association funds. Membership is free of charge.

The AGA seeks to provide services and support to its members and corporate sponsors in order to achieve its endstate of 75% membership of all graduating classes. For further information access the website: [www.adfagrad.org/](http://www.adfagrad.org/)

## UNSW Alumni Association

UNSW now has more than 120,000 alumni living in Australia and overseas. The Association's Board Of Governors understands the value of this diverse group for personal and professional networking - and giving you a lasting connection to UNSW is our highest priority. The UNSW Alumni Association works to offer you the opportunity to stay in touch with your university and benefit from that connection. The Association also creates opportunities for you to play a part in building one of the great universities of the world.

## UNSW Alumni Association Member Benefit Program

All UNSW@ADFA graduates are UNSW Alumni, but the Member Benefit Program offers exclusive services, activities and discounts for subscribing alumni to add value to their relationship with UNSW. Subscriptions and contributions to the Program help the Alumni Association support initiatives such as special events, activities, scholarships and awards.

UNSW@ADFA graduates who wish to join the Membership of the Program pay \$38.50 per year.

The Association's Member benefit Program is described on the following website ([www.unsw.edu.au/alumni/pad/almemberbenefits](http://www.unsw.edu.au/alumni/pad/almemberbenefits)). Subscriptions and contributions to the Program help the Association support initiatives that return real value to alumni including special events, activities, scholarships and awards for members of the alumni family.

A recent survey of alumni interests show that many of you see the web as an opportunity for maintaining your connection with UNSW. Given that we now have alumni in more than 50 countries - logging on is the most effective way of staying in touch with each other! We encourage you to use the UNSW alumni online community as a place to meet and share ideas with other alumni. Register online at [www.unsw.edu.au/alumni/adv/alumniemail.html](http://www.unsw.edu.au/alumni/adv/alumniemail.html)

## Purchase Academy Memorabilia

Many of the events for your graduating year may be recorded in the Year Book, Graduation and CDF videos, graduate photographs and other official event records. You may like to purchase some of these from ETS.



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UNSW@ADFA pp. 13 - 15.

UNSW@ADFA Academic Board p. 275.

UNSW@ADFA Alumni (see Alumni).

UNSW Alumni Association (see Alumni).

UNSW Alumni Member Benefits Program (see Alumni).

UNSW Arms, The p. 15.

University of New South Wales, The p. 14.

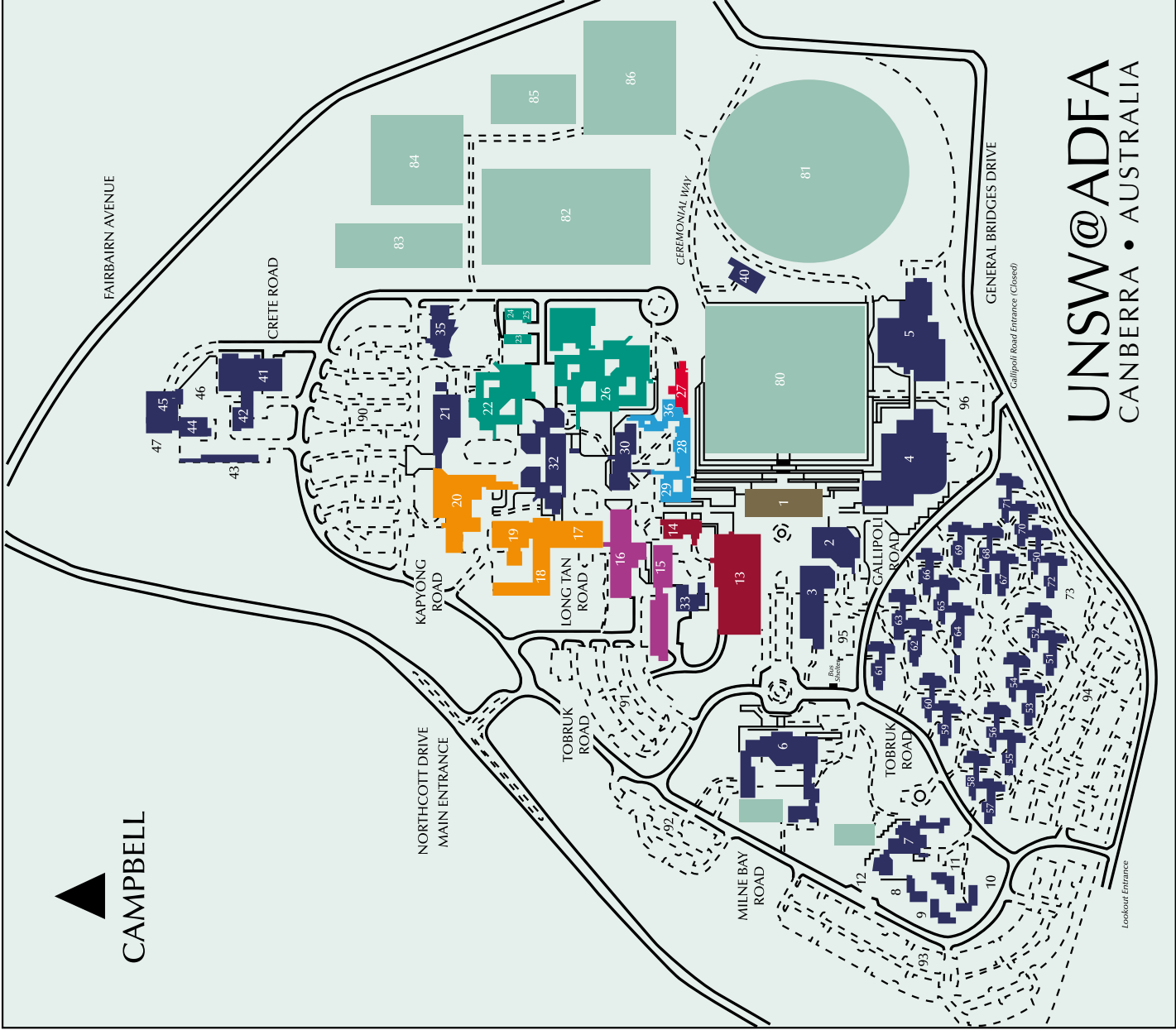
Use of Computers and Electronic Calculators in Exams (see Examinations).

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## W

Welcome to UNSW@ADFA p. 11.

Writing In Examinations (see Examinations).



UNSW@ADFA  
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**BUILDING LEGEND**

**Military Facilities / Academic Buildings**

- |       |  |
|-------|--|
| 1     | Administration / Student Administrative Services               |
| 2     | Adams Hall   |
| 3     | Military Building  |
| 4     | Academy Cadets Mess  |
| 5     | Indoor Sports Centre   |
| 6     | Officers Mess  |
| 7     | SNCO Mess  |
| 12    | Junior Ranks Mess  |
| 13    | Academy Library  |
| 13    | Educational Technology Services (ETS)                          |
| 14    | Information Communication Technology Services (ICT)            |
| 15-16 | School of Information Technology & Electrical Engineering      |
| 17-20 | School of Aerospace, Civil & Mechanical Engineering            |
| 21    | Military Communication Program (MCP) / ACME / PEMS             |
| 22    | School of PEMS North   |
| 23    | Chemical Stores  |
| 24    | Physical Plant Equipment                                       |
| 25    | East Plant Room  |
| 26    | School of PEMS South   |
| 27    | School of Business   |
| 28-29 | School of Humanities and Social Sciences                       |
| 30    | Lecture Theatre South  |
| 32    | Lecture Theatre North / Staff Development Unit / Equity Office |
| 33    | ADFA Cafe / Banks / Hairdresser / Coop Bookshop                |
| 35    | Australian Staff Officers Centre                               |
| 36    | UNSW Defence Studies Forum                                     |
| 40    | Pavilion / Esme Watson Stand                                   |
| 41    | ACT Defence Clothing Store / University Main Store             |
| 42-44 | Australian Federation Guard                                    |
| 45/47 | Spotless Services  |

**Accommodation**

- |       |                                  |
|-------|----------------------------------|
| 8-11  | Accommodation                    |
| 50-58 | Officer Cadet Accommodation      |
| 59-61 | Officer Mess Annex Accommodation |
| 62-72 | Officer Cadet Accommodation      |

**Outdoor Facilities**

- |    |                    |
|----|--------------------|
| 80 | Main Parade Ground |
| 81 | Oval               |
| 82 | Oval               |
| 83 | Tennis Court       |
| 84 | Parade Ground B    |
| 85 | Tennis Court       |
| 86 | Parade Ground A    |

**Carpark**

- |    |                                 |
|----|---------------------------------|
| 90 | Academic Carpark                |
| 91 | Central Carpark                 |
| 92 | Officers Mess Carpark           |
| 93 | Senior and Junior Ranks Carpark |
| 94 | Officer Cadet Carpark           |
| 95 | Military Carpark                |
| 96 | Indoor Sport Centre Carpark     |

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## The University of New South Wales at the Australian Defence Force Academy

Further information regarding undergraduate, postgraduate coursework and research study opportunities is available online via the Student Gateway at [www.unsw.adfa.edu.au/student](http://www.unsw.adfa.edu.au/student)

### Student Administrative Services

Telephone: +61 2 6268 6000  
Facsimile: +61 2 6268 8666  
Email: [sas@adfa.edu.au](mailto:sas@adfa.edu.au)  
Website: [www.unsw.adfa.edu.au/student](http://www.unsw.adfa.edu.au/student)

### Academy Library

Telephone: +61 2 6268 8116  
Facsimile: +61 2 6247 2324  
Email: [library@adfa.edu.au](mailto:library@adfa.edu.au)  
Website: [www.unsw.adfa.edu.au/library](http://www.unsw.adfa.edu.au/library)

### Information Communication Technology Services

Telephone: +61 2 6268 8140  
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Email: [helpdesk@adfa.edu.au](mailto:helpdesk@adfa.edu.au)  
Website: [www.unsw.adfa.edu.au/ict](http://www.unsw.adfa.edu.au/ict)

### Schools

#### School of Aerospace, Civil and Mechanical Engineering

Telephone: +61 2 6268 8269  
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Email: [info.acme@adfa.edu.au](mailto:info.acme@adfa.edu.au)  
Website: [www.unsw.adfa.edu.au/acme](http://www.unsw.adfa.edu.au/acme)

#### School of Business

Telephone: +61 2 6268 6098  
Facsimile: +61 2 6268 8450  
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Website: [www.unsw.adfa.edu.au/sbus](http://www.unsw.adfa.edu.au/sbus)

#### School of Humanities and Social Sciences

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#### School of Information Technology and Electrical Engineering

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Website: [www.unsw.adfa.edu.au/itee](http://www.unsw.adfa.edu.au/itee)

#### School of Physical, Environmental and Mathematical Sciences

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