Important Dates for Students in 2016

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 commences</td>
<td>29 February</td>
</tr>
<tr>
<td>Last day to add courses via myUNSW</td>
<td>6 March</td>
</tr>
<tr>
<td>Last day to drop S1 courses without financial penalty</td>
<td>31 March</td>
</tr>
<tr>
<td>Provisional exam timetable released for S1</td>
<td>15 April</td>
</tr>
<tr>
<td>Last day to drop S1 courses without academic penalty</td>
<td>24 April</td>
</tr>
<tr>
<td>Last day to report exam clashes for S1</td>
<td>29 April</td>
</tr>
<tr>
<td>Mid-Semester Break</td>
<td>2 - 13 May</td>
</tr>
<tr>
<td>Final exam timetable released for S1</td>
<td>31 May</td>
</tr>
<tr>
<td>S1 Ends</td>
<td>10 June</td>
</tr>
<tr>
<td>S1 Study Recess</td>
<td>13 - 17 June</td>
</tr>
<tr>
<td>Examinations (UG students only)</td>
<td>20 June - 1 July</td>
</tr>
<tr>
<td>Mid-Year leave</td>
<td>4 - 15 July</td>
</tr>
<tr>
<td>S1 results published on myUNSW</td>
<td>14 July</td>
</tr>
<tr>
<td>S2 commences</td>
<td>18 July</td>
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<tr>
<td>Last day to add courses via myUNSW</td>
<td>24 July</td>
</tr>
<tr>
<td>Last day to drop S2 courses without financial penalty</td>
<td>31 August</td>
</tr>
<tr>
<td>Provisional exam timetable released for S2</td>
<td>2 September</td>
</tr>
<tr>
<td>Last day to drop S2 courses without academic penalty</td>
<td>11 September</td>
</tr>
<tr>
<td>Last day to report exam clashes for S2</td>
<td>16 September</td>
</tr>
<tr>
<td>Mid-Semester Break</td>
<td>26 - 30 September</td>
</tr>
<tr>
<td>S2 Ends</td>
<td>21 October</td>
</tr>
<tr>
<td>S2 Study recess</td>
<td>24 - 28 October</td>
</tr>
<tr>
<td>Examinations (UG students only)</td>
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<td>24 November</td>
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2016 Public Holiday Compensations S1

<table>
<thead>
<tr>
<th>Event</th>
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<tbody>
<tr>
<td>Canberra Day</td>
<td>14 March</td>
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<tr>
<td>Good Friday</td>
<td>26 March</td>
</tr>
<tr>
<td>Easter Monday</td>
<td>26 March</td>
</tr>
<tr>
<td>ANZAC Day</td>
<td>25 April</td>
</tr>
<tr>
<td>Queen’s Birthday</td>
<td>13 June</td>
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2016 Public Holiday Compensations S2

<table>
<thead>
<tr>
<th>Event</th>
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<tr>
<td>Family and Community Day</td>
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</tr>
<tr>
<td>Labour Day</td>
<td>3 October</td>
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Approved ADFA Activities - Non Teaching Days for Undergraduate Students (Semester 2)

<table>
<thead>
<tr>
<th>Event</th>
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<tbody>
<tr>
<td>Production Dress Rehearsal</td>
<td>9 August</td>
</tr>
<tr>
<td>XD/OC Day</td>
<td>31 August</td>
</tr>
<tr>
<td>Sports Carnival (incl Tug-of-War)</td>
<td>22 September</td>
</tr>
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<td>Ex-Green Eagle, Ex-Neptune, Ex-Wedgekiller</td>
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Events

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<tr>
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<tbody>
<tr>
<td>ADFA Open Day</td>
<td>27 August</td>
</tr>
<tr>
<td>Confering of degrees ceremony</td>
<td>7 December</td>
</tr>
<tr>
<td>Graduation Day</td>
<td>8 December</td>
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Important Dates for 2017

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<td>6 March</td>
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<tr>
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<td>S1 Study Recess</td>
<td>19 - 25 June</td>
</tr>
<tr>
<td>Results available</td>
<td>20 July</td>
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</tbody>
</table>
Contacts

Schools

School of Business (SBUS)
Building 27, Room 219
Ph: +61 2 6268 9550
Fax: +61 2 6268 8450
Email: bus.studentadmin@adfa.edu.au
www.unsw.adfa.edu.au/school-of-business/

School of Engineering and Information Technology (SEIT)
Building 17, Level 2
Ph: +61 2 6268 8580
Fax: +61 2 6268 8276
Email: seit.teaching@adfa.edu.au

School of Humanities and Social Sciences (HASS)
Building 29, HASS Shopfront, Ground Floor
Ph: +61 2 6268 8867
Fax: +61 2 6268 8879
Email: hass@adfa.edu.au

School of Physical, Environmental and Mathematical Sciences (PEMS)
PEMS South, Building 26, Room 102
Ph: +61 2 6268 8801
Fax: +61 2 6268 8786
Email: ugcoord.pem@adfa.edu.au

Academic Support Units

Student Administrative Services
Ground level, Adams Auditorium, Building 111
Ph: +61 2 6268 6000
Fax: +61 2 6268 8666
Email: sas@adfa.edu.au
www.unsw.adfa.edu.au/study/undergraduate/defence/student-assistance

UNSW Canberra Academy Library
Building 13
Ph: +61 2 6268 8882
Email: library@adfa.edu.au
www.unsw.adfa.edu.au/library/

Information, Communication and Technology Services (ICTS)
Building 14
Helpdesk hours are from 8:00 am to 5:00 pm on weekdays.
Ph: +61 2 6268 8140
Email: helpdesk@adfa.edu.au
Heat self-service help requests: http://heat95:8180/
HeatWebUI/hss/HSS.jsp

Academic Language and Learning Unit (ALL)
Building 36, Room 102
Ph: +61 2 6268 8797
Email: knowALL@adfa.edu.au
https://gateway.unsw.adfa.edu.au/iteaching/iall

Creative Media Unit (CMU)
Building 13, Lower Ground Floor
Ph: +61 2 6868 8503
Email: cmu@adfa.edu.au
Preface

The information in this booklet may be amended without notice by UNSW Canberra. Any updates will be maintained on the electronic copy available via the Student Gateway, and the Version number and date of this booklet updated accordingly.

The program and course information included here is a summary only. For the most complete and current information, or to find information about courses offered by other faculties of UNSW, please see the UNSW Online Handbook: www.handbook.unsw.edu.au

The University of New South Wales at the Australian Defence Force Academy (UNSW Canberra) is a registered ACT Provider under ESOS Act 2000 - CRICOS Provider Code: 00098G.

The ADFA Badge

The symbolism 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

Arms of THE UNIVERSITY OF NEW SOUTH WALES

Granted by the College of Heralds, 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 Mullets 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.
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Essential Information

Student Gateway
A starting point for finding information about your studies.
https://gateway.unsw.adfa.edu.au

myUNSW
An essential online portal for enrolment and academic records.
www.my.unsw.edu.au

MOODLE
Access online components of your courses and various support services.

Zmail Office 365
https://login.microsoftonline.com

Timetable Information
Course timetable

Special Consideration
If you believe your studies have suffered due to misadventure you may be eligible to receive Special Consideration.
https://gateway.unsw.adfa.edu.au/isas/current_students/special_consideration

Examinations
Information about exam periods held at the end of each semester.

Academic Standing Rules
https://student.unsw.edu.au/academic-standing

Student Forms
Most administrative processes require a student to complete and lodge a form.
https://gateway.unsw.adfa.edu.au/isas/current_students/forms/ugforms.html

Credit for Previous Studies
If you have completed tertiary studies at a recognised tertiary institution, you may be able to gain credit towards your UNSW Canberra degree.
www.unsw.adfa.edu.au/study/undergraduate/defence/apply-now

Program (Study) Leave
If you need to take a break from your studies, you can apply for Program Leave. Undergraduate students must have military approval.
https://gateway.unsw.adfa.edu.au/isas/current_students/forms/leave.html

Off-campus Language Study
For undergraduate students who wish to study a language as part of their degree.
Prizes and Awards
https://student.unsw.edu.au/prizes

Student Conduct Policy and Procedure
https://student.unsw.edu.au/conduct

Student Complaint Policy and Procedure
https://student.unsw.edu.au/complaints

Graduation
For information on the graduation ceremony.
www.unsw.adfa.edu.au/study/graduation

Assessment Policy
This policy outlines the University’s commitment to the design and delivery of assessment that facilitates achieving the specified learning outcomes of courses and programs. It enables the development of rules and procedures that facilitate the management of student assessment and related activities. The policy specifies minimum requirements for design and delivery of assessments. It does not constrain the development of alternative or additional forms of effective assessment, provided such assessments are consistent with the principles stated in this policy.


Equity and Diversity
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; sexuality; 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 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:
https://gateway.unsw.adfa.edu.au/iadmin/iequity
Health and Safety (H&S)

All students must comply with legislation and all relevant Defence and/or UNSW Canberra policies, procedures and instructions such as:

- complying with risk mitigation strategies to eliminate or control hazards;
- taking action to avoid, eliminate or minimise hazards;
- reporting all hazards, accidents, incidents and dangerous occurrences in accordance with relevant Defence and UNSW Canberra 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, risk controls 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.

For more information on UNSW Australia and UNSW Canberra H&S policies and procedures please visit: https://gateway.unsw.adfa.edu.au/admin/ohs/health_safety/policy_procedures/index.html
Getting Help

Who does what?

There are many sources of academic and administrative advice and assistance available to students at UNSW Canberra. Initial points of contact include:

- Student Administrative Services (SAS)
- Deputy Head of School (Teaching)
- School Administration Offices
- Course Convenors - lecturers and tutors
- Creative Media Unit (CMU)
- Academic Language and Learning Unit (ALL)
- Information Communication and Technology Services (ICTS)
- Academy Library

Student Administrative Services

SAS is responsible for a number of general academic administrative services. Students should seek advice at SAS for matters relating to:

- Admission to programs
- Credit from previous study
- Coordinating enrolment advisory sessions
- Degree Structures
- Advice about your program of study
- Enrolment advice and variations - adding or dropping courses
- Program Transfer requests
- Cross-Institutional study requests
- Program (Study) Leave requests
- Special Consideration
- Class and examination timetabling, including resolution of class and examination clashes
- Coordination of end-of-semester examinations
- Release of end-of-semester results
- Coordination of conferral ceremonies for the award of degrees
- Advice on any UNSW policy or procedure

Schools

Each School has its own administration office located close to staff and the teaching areas. School Administration staff are responsible for the support of academic staff and students within the School.

Students should seek advice with the School Administration Officers for matters relating to:

- General enquiries for staff and courses taught within the School
- Handling of assessment items

Undergraduate Coordinators

Undergraduate Coordinators are members of academic staff delegated by their Head of School to advise students on matters requiring academic knowledge and judgment.

Consult with the Undergraduate Coordinator (or in the School of Engineering and Information Technology, the Director of Undergraduate Studies) about:

- The nature and content of majors and courses;
- Eligibility for credit for previous study, and the enrolment implications;
- Program transfers, program leave, cross-institutional study and concurrent program enrolment;
- Advice on assessment and academic standing policies and practices related to the undergraduate programs; and
- Matters of special consideration – advice on intensity of enrolment when study is interrupted by illness or other personal difficulties
Course Convenors

Course Convenors are responsible for the administration of a course. Responsibilities include the coordination of the academic staff teaching and marking in the course, the determination of the assessment, preparation and distribution of course handouts, and the determination of the provisional final mark for students enrolled in the course. The Course Convenor, or their nominee, also acts as a referee who must be available to resolve queries at the time of any examination in the course.

Lecturers and tutors are available by arrangement outside regular class times to assist students with their studies.

Information regarding individual contact arrangements is available in the course outline.
Glossary of Terms and Acronyms

Academic Standing: Is an indication of your current progress toward completion of your Program. It is calculated at the end of each semester and is based on the proportion of load passed together with your Academic Standing at the end of the previous semester. Academic Standing is calculated at the career level (i.e. Undergraduate/Postgraduate), not at the program level. See https://student.unsw.edu.au/academic-standing

AD(E): Associate Dean (Education). The current ADE is Associate Professor David Blaazer from the School of Humanities and Social Sciences.

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

Advanced Standing: See Credit.

ALL: Academic Language and Learning Unit (see Support Services).

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.

CDFS Program: Chief of Defence Force Students (CDFS) Programs. These are programs for academically high achieving students and are endorsed by the Chief of Defence Force.

Core course: A course which is a compulsory requirement of a degree major or specialisation.

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 Catalogue: This is the listing of courses offered by UNSW Canberra. They are listed by the course alpha code for each School in the back of this booklet.

Course Authority: Is responsible to the UNSW Canberra Assessment Review Group for the assessment in a course. A course authority is normally the head of the school in which the course is taught. Heads of School normally delegate their authority for academic decisions to the relevant School Coordinators, such as the Undergraduate Coordinator or the Deputy Head of School (Teaching).

Course Convenor: Is responsible for the administration of a course. Responsibilities include the coordination of the academic staff teaching and marking in the course, the determination of the assessment, preparation and distribution of course materials, and the determination of the provisional final mark for students enrolled in the course. The Course Convenor, or their nominee, also acts as a referee who must be available to resolve queries at the time of any examination in the course.

Course Outlines: Documents available via Student Gateway and Moodle that list the details of each course.

Credit: A student who has completed previous tertiary studies at UNSW Canberra or another recognised tertiary institution may be eligible to receive units of credit (sometimes called advanced standing) towards their current program. This effectively means the student will be required to complete fewer courses to complete their program. Credit for previous study at an institution other than UNSW will not reflect the mark or grade attained and is not included in the WAM calculation.

For undergraduate students having advanced standing in your program does not mean that you can leave ADFA and progress to your Service early. The AMET program is 3-years, so all students will remain at ADFA for this duration. Students with significant credit may complete their UG degree early and commence postgraduate studies or an Honours program.

Discipline: An area of academic study, such as a ‘major’.
Exemption: If a student has work experience which is judged to be equivalent to the teaching offered within a core course, they may be exempted from studying this core course, provided that they study an alternative course relevant to their program. This alternative course will be selected in negotiation with the UG Coordinator. Units of credit are not granted for an exemption. Students who have completed formal course work should apply for ‘credit’ – see above.

FSEO: Faculty Students Ethics Officer – see AD(E).

Getting Started Guide: a Guide designed to help you get started as efficiently and smoothly as possible. It explains administrative processes and requirements, and provides details of where to find any further information you may need. Available at www.unsw.adfa.edu.au/study/undergraduate/defence/getting-started

General Education (GE): All undergraduate students are required to complete 12 units of credit of General Education courses, except those who have had equivalent courses, taken at another tertiary institution, credited as GE courses.

HPW: Hours Per Week – the number of class contact hours for a course per week.

Leave of Absence: Once a student has completed at least one full-time (or equivalent) semester of study, Leave of Absence (Program Leave) may be granted for a period of up to one year. Only in exceptional circumstances will a student be granted more than a total of two semesters of leave. Students who are granted Program Leave do not have access to university resources and services (such as Academy Library and email services) during their leave of absence. Undergraduate students are generally not approved for program leave due to their military commitments.

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

Moodle: Moodle is the Learning Management System in use at UNSW Canberra. Lecturers may use Moodle to distribute class materials, provide information about class activities and communicate with students.

myUNSW: An essential online gateway where students can enrol in courses, view results and update personal information. Access to this service requires a ZPASS. Visit: https://my.unsw.edu.au

Program: An approved path 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 relevant degree.

Program Authority: For undergraduate studies, this person is the Undergraduate Coordinator.

Recognised Tertiary Institution: A tertiary institution which is equal in quality and services to UNSW. Usually a Course Authority will assess if an external institution is a recognised tertiary institution in relation to a request for credit.

Stream: Also known as a major in undergraduate degrees. It is an area of concentration defined by a group of courses which must be completed.

Undergraduate (UG): A student who is studying a Bachelor degree.

Undergraduate Coordinator: (or in the School of Engineering and Information Technology, the Director of Undergraduate Studies) Undergraduate Coordinators are members of academic staff delegated by their Head of School to advise students on matters requiring academic knowledge and judgment.

Units of Credit (UOC): UNSW operates a uniform unit 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, ie 24 units of credit per Semester. As a guide, 1 unit of credit equates to approximately 25-30 hours of total student workload per Semester (including lectures, tutorials, labs, private study and examinations).

UNSW: The University of New South Wales.

UNSW Canberra: The University of New South Wales, Canberra campus at the Australian Defence Force Academy.

UNSW Canberra Regulations: These standardised regulations apply to all undergraduate coursework students. These should be read in conjunction with the academic rules and program information identified for your degree.
WAM: Weighted Average Mark – This 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 Semester, and a separate cumulative WAM is calculated for relevant results over the student’s entire program.

ZMail Office 365: Kensington campus email which is required if your course is being delivered via MOODLE. Moodle announcements are sent via email to your Zmail account (https://login.microsoftonline.com). You will need to create a forwarding rule from this email if you do not wish to use it as your main email account to your preferred email account (which can be work email or a private email address).

ZPASS: The password that permits access to myUNSW. This web portal will give you access to undertake and change your enrolment, confirm your enrolment details and grades, and the ability to change contact details.
Understanding your UNSW Canberra Degree

There are various sets of rules that you should understand before enrolling in your courses. If you require assistance understanding these rules, please contact Student Administrative Services or the relevant school.

This information applies to students who commence their study in 2016. Continuing students should refer to the handbook from the year they commenced study for their degree rules. New or revised courses added to current degree rules are applicable to students who commenced prior to 2016.

UNSW Canberra Regulations for Undergraduate Students

These rules apply to all undergraduate students regardless of the degree they are studying. See below or refer to the following website: http://www.unsw.adfa.edu.au/study/undergraduate/defence/programs

Academic Rules

These rules detail the requirements and structure of a degree. These can be found under information for each degree.

General Education (GE)

All undergraduate students are required to complete GE courses worth 12 UOC in total.

Please review the UNSW Canberra Rules, section 4 (refer to page 15) before enrolling in your GE courses.

Major Rules

If you are studying a BA or BSc, you are required to complete two majors as part of your degree. These rules detail courses a student must complete in order to meet the requirements of a major. In most cases, students must understand these rules before enrolling to ensure the courses they complete will count towards their degree.

Students studying BBus, BIT, BEng or BTech degrees enrol in the courses set out in their Academic Rules and do not need to complete majors.

UNSW Canberra Regulations for Undergraduate Students

These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules apply to each student who enters an undergraduate program from 2016 onwards. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year - see program rules in the archived UNSW Handbook website.

1. Meeting degree requirements
1.1 To be eligible to graduate, a student must comply with the UNSW Canberra at ADFA Regulations for Undergraduate Students and specific program rules.

1.2 Every student must complete courses as part of their degree. The requirements of a course will be outlined by its course convenor.

1.3 A student will require approval from the relevant School before enrolling in a course if they have not met the prerequisites specified.

1.4 Each course completed or granted as credit towards a program may be counted towards only one major in that program.
2. Concurrent enrolment in multiple programs

No student will be admitted into a UNSW Canberra program without the approval of the relevant Head of School if they are already enrolled in another program of study at another tertiary institution.

3. Study required per UOC

25-30 hours of work (over a 13 week teaching period) including face-to-face teaching sessions and private study time, is expected for 1 UOC per Semester (i.e. 150-180 hours of study is expected for a 6 UOC course).

4. General Education requirement

4.1 All UNSW Canberra programs include 12 UOC of General Education courses.

4.2 ZGEN courses are worth 6 UOC and are offered each semester. If students wish to undertake more than 12 UOC of ZGEN courses they may select an additional ZGEN course/s as Upper Level free elective/s.

4.3 Students must select one General Education course from each of the following groups:

Group 1: ZGEN2222 Introduction to Strategic Studies, OR ZGEN2801 Strategy, Management and Leadership; AND

Group 2: ZGEN2240 Introduction to Military Ethics, OR ZGEN2215 Law, Force and Legitimacy.

5. Limitation on enrolment each Semester

In any semester, a student cannot enrol in 30 UOC or more without the approval of the Manager, Student Administrative Services and the relevant Officer Commanding, ADFA. Any student wishing to enrol in 30 UOC or more in a semester must also first discuss their program with their school Undergraduate Coordinator, or SEIT Director Undergraduate Studies.

6. Credit cancellation period

No units of credit shall count towards any award at undergraduate level if ten or more years have elapsed since a student accumulated the units of credit.

7. Credit for previous study

7.1 Credit may be granted on the basis of previous studies at a recognised tertiary institution provided a Credit for Previous Study form is submitted and approved within the credit cancellation period.
4400 Arts

Typical Duration: 3 years
Minimum UOC for Award: 144 units of credit
Typical UOC per Semester: 24 units of credit
Related Program: 4461 Arts (CDF), 4511 Arts (Honours)

Program Description
The Bachelor of Arts is a three-year program at pass level. A separate fourth-year program at Honours level (Program Code 4511) is also available for eligible applicants.

A Bachelor of Arts program enriches your understanding of how human beings make, recognise, and debate about life’s meaning and the values that support civilisation. All Arts disciplines teach students to develop their capacity for critical analysis and argument as well as an awareness of the value of language as a political, intellectual, creative and communicative tool.

Students can combine courses from Business, English and Media Studies, Indonesian Studies, Geography, History, and International and Political Studies, building expertise in two or more of these disciplines.

Honours students who are RAN midshipmen or RAAF officer cadets continue with their programs at UNSW, Canberra 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 their third year. 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 Honours degree.

Program Objectives and Graduate Attributes
The objective of a Bachelor of Arts program is to stimulate students intellectually and to immerse them in the discipline of learning.

The program will develop graduate attributes, such as strong written and oral communications skills, the capacity to research, criticise and reflect, and the ability to work independently and collaboratively.

The following majors are available in the Bachelor of Arts:
- Business
- English and Media Studies
- Geography
- History
- Indonesian Studies
- International and Political Studies

Detailed information on the individual majors (also known as streams) are available from page 64 of this booklet.

Program Structure
The program structure below is intended to illustrate the operation of the program rules. Nothing in this section replaces or modifies any part of the program rules.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Arts Major 1</th>
<th>Arts Major 2</th>
<th>Prescribed Electives</th>
<th>Free Electives</th>
<th>Gen. Ed.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>12</td>
<td>12</td>
<td></td>
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<tr>
<td>Stage 2/3</td>
<td>36</td>
<td>36</td>
<td>12</td>
<td>12</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>48</td>
<td>12</td>
<td>24</td>
<td>12</td>
<td>144</td>
</tr>
</tbody>
</table>
Academic Rules

1. UNSW Canberra Regulations for Undergraduate Students

1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.

1.2 A student must comply with the UNSW Canberra Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Arts take precedence over the UNSW Canberra Regulations for Undergraduate Studies.

2. Program Rules Dictionary

“Major” consists of courses totalling no less than 48 UOC, with at least 36 UOC from Level II and III courses, with at least 18 UOC at Level III.

“Level I” means courses at an introductory level, normally taken at Stage 1.

“Level II” means courses at an upper level, normally taken at Stage 2.

“Level III” means courses at an upper level, normally taken at Stage 3.

3. Program Rules

3.1 The degree of Bachelor of Arts shall be conferred as a ‘Pass with Distinction’ when a Distinction level performance based on a weighted average mark (WAM) of at least 75% has been achieved in all courses completed.

3.2 The BA program must include courses totalling no less than 144 UOC.

3.3 Students must select a minimum of two Arts discipline areas in which they will major. Each major consists of courses totalling no less than 48 UOC, with at least 36 UOC from Level 2 and 3 courses, with at least 18 UOC at Level 3.

3.4 Students must complete two prescribed elective courses: ZPEM2312 Fundamentals of Data Analysis and ZINT2100 Introduction to Cyber-Security: Policy and Operations.

Exclusions: Students who complete ZPEM1301 Mathematics 1A or ZPEM1303 Engineering Mathematics 1A will be exempt from ZPEM2312.

3.5 Students are required to include 12 UOC of General Education courses, normally taken in the second or third year of study. Students must select one General Education course from each of the following groups:

Group 1: ZGEN2222 Introduction to Strategic Studies, OR ZGEN2801 Strategy, Management and Leadership;

AND

Group 2: ZGEN2215 Law, Force and Legitimacy, OR ZGEN2240 Introduction to Military Ethics

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

3.7 At least 96 units of credit must be taken from Upper-Level courses.

4405 Business

Typical Duration: 3 years
Minimum UOC for Award: 144 units of credit
Typical UOC per Semester: 24 units of credit
Related Program: 4462 Business (CDF), 4512 Business (Honours)

Program Description

The Bachelor of Business is a three-year program at pass level. A separate 4th-year program at Honours level (Program Code 4512) is also available for eligible applicants.

The program 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 Graduate Attributes

Students taking this program 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 program 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 program balances business-related courses with other broader study in a ratio of 2:1. Within the business-related component of the program, all students are required to complete a core of ten courses, four in first year and six at the upper-level (Years 2 and 3). A spine of three, semester-length integrating courses runs through the core, providing students with problem-solving, analytical and general management skills embedded in a business context.

Students normally complete all four pre-requisite courses before proceeding to upper-level study in the BBus.

ZBUS1101 Organisational Behaviour
ZBUS1102 Business Economics
ZBUS1103 Introduction to Accounting
ZBUS1104 Foundations of Management

The second and third year of the BBus comprises core Business courses and Business-related electives, one prescribed elective course, one free elective course, and two General Education courses.

Business Core Courses:
ZBUS2101 Business Law
ZBUS2302 Leadership
ZBUS2820 International Business
ZBUS3104 Business Capstone
ZBUS3303 Logistics Management
ZPEM2312 Fundamentals of Data Analysis

Prescribed Elective Course:
ZINT2100 Introduction to Cyber-Security

Business Elective Courses

Students must complete 6 courses from the following list:
ZBUS2202 Australia and the World Economy
ZBUS2207 Managing in the Public Sector
ZBUS2401 Financial Management
ZBUS3102 Project Management
ZBUS3103 Human Resource Management
ZBUS3203 The Making of Economic Policy
ZBUS3206 Managing Across Cultures
ZEIT2001 Managing Information Systems
ZEIT2307 Capability Option Analysis
ZEIT3104 Electronic Business
ZHSS2601 Introductory Business Ethics

Note: ZBUS2202 and ZBUS3203 have a prerequisite of ZBUS1102 Business Economics

General Education Courses:

Students must complete a minimum of 12 UOC total as per General Education Requirements at UNSW Canberra. Students must select one General Education course from each of the following groups:

Group 1: ZGEN2222 Introduction to Strategic Studies, OR ZGEN2801 Strategy, Management and Leadership;
AND

Group 2: ZGEN2215 Law, Force and Legitimacy, OR ZGEN2240 Introduction to Military Ethics
1. UNSW Canberra Regulations for Undergraduate Students

1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.

1.2 A student must comply with the UNSW Canberra Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Business take precedence over the UNSW Canberra Regulations for Undergraduate Studies.

2. Program Rules Dictionary

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

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

“Business Core” means compulsory courses in the Bachelor of Business as listed in the Program Structure.

“Business Electives” means elective courses in the Bachelor of Business as listed in the Program Structure.

3. Program Rules

3.1 The degree of Bachelor of Business shall be conferred as a ‘Pass with Distinction’ when a Distinction level performance based on a weighted average mark (WAM) of at least 75% has been achieved in all courses completed.

3.2 To qualify for the degree of Bachelor of Business, a student shall normally be enrolled for a minimum of six semesters and gain a minimum of 144 units of credit (normally 24 units in each full-time semester), 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) Upper-Level Business electives totalling 36 units of credit;
(d) Prescribed elective course ZINT2100 Introduction to Cyber-Security: Policy and Operations;
(e) A minimum of 12 units of credit of General Education courses;
(f) 6 units of credit taken from Upper-Level courses offered by Schools other than the School of Business.

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

3.4 At least 96 units of credit must be taken from Upper-Level courses.

Program Structure Table:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Business Core</th>
<th>Business Electives</th>
<th>Prescribed Elective</th>
<th>Free Electives</th>
<th>Gen. Ed.</th>
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<td>I</td>
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<td>6</td>
<td>30</td>
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<td>144</td>
</tr>
</tbody>
</table>
4410 Science

Typical Duration: 3 years
Minimum UOC for Award: 144 units of credit
Typical UOC per Semester: 24 units of credit
Related Program: 4463 Science (CDF), 4513 Science (Honours)

Program Description
The Bachelor of Science is a three-year program at pass level. A separate fourth-year program at Honours level (Program Code 4513) is also available for eligible applicants.

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 programs within three years. Honours students who are RAN midshipmen or RAAF officer cadets continue with their programs at UNSW Canberra and complete their programs 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 return to the Academy to complete their program.

Program Objectives and Graduate Attributes
A Bachelor of Science program will develop students’ lifetime skills including creativity, problem-solving ability, critical thinking and communication skills that will be useful not only in a scientific environment but in all professions. It will prepare students to deal with technical and management issues that will often require scientific knowledge and the intellectual and practical problem-solving skills developed through studies in physical, environmental and mathematical sciences, and information technology.

The Bachelor of Science program rules allow students to include a mix of Science courses with courses from Arts, Business, Information Technology and Engineering.

The following Science discipline areas are available as majors in the Bachelor of Science:
- Aviation
- Chemistry
- Computer Science
- Geography
- Information Systems
- Mathematics
- Oceanography
- Operations Research
- Physics

Recommended Double-Major Combinations
One of the following double major combinations must be undertaken in order to complete on-time with no timetable impact, such as AMET clashes.

For the study plans of these combinations see https://www.unsw.adfa.edu.au/degree/undergraduate/defence/science
- Mathematics – Physics
- Physics – Chemistry
- Chemistry – Geography
- Chemistry – Mathematics
- Mathematics – Oceanography
- Physics – Oceanography
- Geography – Oceanography
- Mathematics – Aviation
- Physics – Aviation
- Chemistry – Aviation
- Geography – Aviation
- Mathematics – Computer Science
- Geography – Information Systems
Program Structure

The program structure should be read in conjunction with the program rules:

<table>
<thead>
<tr>
<th></th>
<th>Science Major 1</th>
<th>Science Major 2</th>
<th>Prescribed Electives</th>
<th>Free Electives</th>
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Academic Rules

1. UNSW Canberra Regulations for Undergraduate Students

1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.

1.2 A student must comply with the UNSW Canberra Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Science take precedence over the UNSW Canberra Regulations for Undergraduate Studies.

2. Program Rules Dictionary

“Major” means an approved combination of 48 or more units of credit in the one discipline area, with at least 18 UoC at each of Level 2 and Level 3.

“Level 1” means courses at an introductory level, normally taken at Stage 1.

“Level 2” means courses at an upper level, normally taken at Stage 2.

“Level 3” means courses at an upper level, normally taken at Stage 3.

3. Program Rules

3.1 The degree of Bachelor of Science shall be conferred as a ‘Pass with Distinction’ when a Distinction level performance based on a weighted average mark (WAM) of at least 75% has been achieved in all courses completed.

3.2 The BSc program must include courses totaling no less than 144 UoC.

3.3 Students must select two Science discipline areas in which they will major. Each major consists of courses totaling 48 UoC with at least 36 UoC from Level 2 and 3 courses, and with at least 18 UoC at Level 3.

3.4 Students must complete two prescribed elective courses ZPEM2312 Fundamentals of Data Analysis and ZINT2100 Introduction to Cyber-Security: Policy and Operations. These two courses do not count towards the students’ 96 UoC for their Science discipline area.

Exclusion: Students who complete ZPEM1301 Mathematics 1A or ZPEM1303 Engineering Mathematics 1A will be exempt from ZPEM2312.

3.5 Students are able to include courses from Business, Engineering and Arts in the program, subject to timetabling constraints and prerequisites.

3.6 Students are required to include 12 UOC of General Education courses, normally taken in the second or third year of study.

Students must select one General Education course from each of the following groups:

Group 1: ZGEN2222 Introduction to Strategic Studies, OR ZGEN2801 Strategy, Management and Leadership;

AND

Group 2: ZGEN2240 Introduction to Military Ethics, OR ZGEN2215 Law, Force and Legitimacy

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

3.8 At least 96 units of credit must be taken from Upper-Level courses.
4426 Information Technology

Typical Duration: 3 years
Minimum UOC for Award: 144 units of credit
Typical UOC per Semester: 24 units of credit
Related Program: 4469 Information Technology (CDF), 4514 Information Technology (Hons)

Program Description
The Bachelor of Information Technology is a three year program at pass level. A separate 4th-year program at Honours level (program code 4514) is also available for eligible applicants. Information Technology (IT) is “the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware”, according to the Information Technology Association of America (ITAA-www.ITAA.org). IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit, and securely retrieve information. Today, the term information has ballooned to encompass many aspects of computing and technology. IT professionals perform a variety of duties that range from installing applications to designing complex computer networks and information databases.

Graduates of the Bachelor of Information Technology at ADFA will be able to do, think, and manage IT:

“Do IT” - the ability to design and realise (build) IT artifacts
“Think IT” - the ability to analyse and explain IT-related problems
“Manage IT” - the ability to evaluate, acquire, and integrate IT solutions (through people/teams)

Program Objectives and Graduate Attributes
The Bachelor of Information Technology program develops students’ lifetime skills including creativity, problem-solving ability, critical thinking and communication skills that will be useful not only in an IT environment but also in all professions. It prepares students to deal with technical and management issues in the IT environment and for which IT is applied in organisational settings. It develops intellectual and practical problem-solving skills through studies in the information technology milieu.

Program Structure
A Bachelor of Information Technology involves a minimum of 96 units of credit (UOC) from the IT disciplinary core. The Bachelor of Information Technology program rules allow students to include a mix of Information Technology courses with courses from Science, Business, Engineering and the Arts.

Year One: 30 UOC IT Core Courses, 18 UOC ‘other’ Level I Courses
Year Two: 42 UOC IT Core Courses, 6 UOC General Education Courses
Year Three: 36 UOC IT Core Courses, including a year-long project, 6 UOC General Education Courses and a Level III 6 UOC elective course

### Information Technology Core Courses

<table>
<thead>
<tr>
<th>First Year Program</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZEIT1101</td>
<td>Computational Problem Solving</td>
<td></td>
</tr>
<tr>
<td>ZEIT1102</td>
<td>Introduction to Programming</td>
<td></td>
</tr>
<tr>
<td>ZEIT1301</td>
<td>Introduction to the IT Profession</td>
<td></td>
</tr>
<tr>
<td>ZEIT1302</td>
<td>Introduction to Systems Thinking</td>
<td></td>
</tr>
</tbody>
</table>

Plus 18 UOC from other Level I courses and 6 UOC from an approved Maths course:

Approved Maths courses - select one course from this list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZPEM1301</td>
<td>Mathematics 1A</td>
</tr>
<tr>
<td>ZPEM1303</td>
<td>Engineering Mathematics 1A</td>
</tr>
<tr>
<td>ZPEM2312</td>
<td>Fundamentals of Data Analysis</td>
</tr>
</tbody>
</table>
### Second Year Program

- ZEIT2102 Computer Technology
- ZEIT2103 Data Structures
- ZEIT2301 Solution Design
- ZEIT2306 Service Design
- ZEIT2307 Capability Options Analysis
- ZEIT2403 Intro to Operations Research
- ZINT2100 Introduction to Cyber-Security

Plus one 6 UOC General Education course

### Third Year Program

- ZEIT3101 IT Project 2
- ZEIT3118 IT Project 1

Select four courses from the following list:

- ZEIT3110 Service Management
- ZEIT3113 Computer Languages & Algorithm
- ZEIT3114 Internetworking
- ZEIT3302 Software Project Management
- ZEIT3404 Simulation
- ZEIT3406 Quantitative Operations Research

Plus one 6 UOC General Education course

Plus either a fifth course from the prescribed third year courses, or one 6 UOC elective course from the list below, or any course approved by the SEIT Program Coordinator:

- ZEIT1110 Computer Games
- ZEIT3102 Cryptography
- ZEIT3104 Electronic Business
- ZEIT3111 Special Topic
- ZEIT3112 Special Topic 2
- ZEIT3115 Systems and Network Admin
- ZEIT3117 Cyber-Security
- ZEIT3308 The E-Warrior

Students must select one General Education course from each of the following groups:

**Group 1:** ZGEN2222 Introduction to Strategic Studies, OR ZGEN2801 Strategy, Management and Leadership;

**AND**

**Group 2:** ZGEN2240 Introduction to Military Ethics, OR ZGEN2215 Law, Force and Legitimacy

### Academic Rules

1. **UNSW Canberra Regulations for Undergraduate Students**

   1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.

   1.2 A student must comply with the Faculty Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Information Technology take precedence over the UNSW Canberra Regulations for Undergraduate Students.

2. **Program Rules Dictionary**

   - “Level I” means courses at an introductory level, normally taken at Stage 1.
   - “Level II” means courses at an upper level, normally taken at Stage 2.
   - “Level III” means courses at an upper level, normally taken at Stage 3.
   - “Upper Level” means courses normally taken at Stage 2 and Stage 3.

3. **Program Rules**

   3.1 The degree of Bachelor of Information Technology shall be conferred as a ‘Pass with Distinction’ when a Distinction level performance based on a weighted average mark (WAM) of at least 75% has been achieved in all courses completed.

   3.2 To qualify for the degree of Bachelor of Information Technology, a student shall normally be enrolled for a minimum of six semesters and gain a minimum of 144 Units of Credit (UoC) including:

   - (a) A minimum of 48 UOC of Level I courses, with 24 UOC comprised of Information Technology Core courses;

   - (b) A minimum of 72 UOC of upper-level Information Technology Core courses;

   - (c) 12 UOC from prescribed courses - approved Level I Mathematics course and ZINT2100;

   - (d) A minimum of 12 UOC of General Education courses;

   - (e) A 6 UOC taken from upper-level elective course;

   - (f) No more than 48 UOC may be gained for Level 1 courses; and

   - (g) At least 96 UOC must be taken from Upper-Level courses.
4430 Technology (Aeronautical Eng)

Typical Duration: 3 years
Minimum UOC for Award: 144 units of credit
Typical UOC per Semester: 24 units of credit
Related Program: 4468 Tech Aero Engineering (CDF)

Program Description
Engineering Technology degrees within UNSW Canberra provide outstanding technology education to the future leaders of the Australian Defence Force and encourage excellence through contributions to the engineering profession, industry and community.

Students holding a Bachelor of Technology in the Aeronautical Engineering program may, under normal circumstances, articulate to the Bachelor of Engineering in the Aeronautical Engineering program with 12 months of additional study.

This three-year technology program at UNSW Canberra is accredited by Engineers Australia at the Engineering Technologist level.

Program Objectives and Graduate Attributes
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: foundation science, engineering technology, materials and structures, dynamics and control, thermofluids, design and management as well as discipline specific streams such as aircraft systems and engines.

At the end of the program students are expected to meet the graduate attributes of the University and Stage 1 Competencies of Engineers Australia, ready to practise in their chosen profession and with the ingenuity and resourcefulness to meet rapid technological change.

The BTech (Aero) is primarily designed for officer cadets and midshipmen of the Australian Defence Force who intend to become aircrew and wish to enhance their understanding of the operation and performance of aircraft. It is differentiated from the B Tech (Aviation) program by providing a broader engineering technology foundation.

Program Structure
Bachelor of Technology degrees require a prescribed program structure as determined by the technology program chosen.

First Year Program
ZEIT1101 Computational Problem Solving
ZEIT1500 Statics
ZEIT1501 Engineering Practice
ZEIT1502 Dynamics
ZPEM1303 Engineering Mathematics 1A
ZPEM1304 Engineering Mathematics 1B
ZPEM1501 Physics 1A
ZPEM1502 Physics 1B

Second Year Program
ZEIT2500 Thermofluids
ZEIT2501 Mechanical and Electronic Design
ZEIT2502 Fundamentals of Flight
ZEIT2503 Fluid Mechanics
ZEIT2504 Mechanics of Solids
ZINT2501 Engineering Materials and Chemistry
ZPEM2309 Engineering Mathematics 2A
ZPEM2310 Engineering Mathematics 2B

Third Year Program
ZEIT3500 Engineering Structures
ZEIT3501 Engineering Materials
ZEIT3503 Aerodynamics
ZEIT3802 BTech Project and Practical Experience
ZINT2100 Introduction to Cyber-Security
And 2 x General Education courses
And 1 x Technical Elective courses

Technical Electives
ZEIT3502 Vibration and Control Engineering
ZEIT3504 Aircraft and Systems Design 1
ZEIT3505 Flight Dynamics and Aircraft Control
ZEIT4003 Computational Fluid Dynamics
ZEIT4007 Rotorcraft Engineering
ZEIT4008 Integrated Mechanical Design
ZEIT4013 Hypersonics and Advanced Propulsion
ZEIT4702 Instrumentation
ZEIT6552 Advanced Rotorcraft Engineering

Upper Level courses from BEng (Aero) or other programs may be taken with the approval of the Director of Undergraduate Studies, approval although such choices may add time to a subsequent articulation to a BE degree.
Students must select one General Education course from each of the following groups:

Group 1: ZGEN2222 Introduction to Strategic Studies, OR ZGEN2801 Strategy, Management and Leadership;

AND

Group 2: ZGEN2240 Introduction to Military Ethics, OR ZGEN2215 Law, Force and Legitimacy

Academic Rules

1. UNSW Canberra Regulations for Undergraduate Students

1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.

1.2 A student must comply with the UNSW Canberra Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Technology take precedence over the UNSW Canberra Regulations for Undergraduate Students.

2. Program Rules:

2.1 To qualify for the degree of Bachelor of Technology, a candidate shall normally be enrolled for a minimum of six semesters and gain a minimum of 144 units of credit (normally 24 UOC in each full time semester).

2.2 A student completing a Standard Program shall complete courses, in the years prescribed, as set out in the relevant schedule.

2.3 A student 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 student's enrolment will be accepted for any course, the student must have completed the relevant pre-requisite courses shown in the Course Catalogue, except where the School Undergraduate Coordinator for the appropriate course approves otherwise.

2.5 Students are required to include 12 UOC of General Education courses, normally taken in the second or third year of study.

3. Practical Experience Requirements

Before graduation a student shall complete 40 days of approved practical engineering experience which must be done in blocks of at least 20 working days each where practicable and where each block must be in the service of a single provider. 20 days of appropriate service training may be counted towards this total.

4437 Technology (Aviation)

Typical Duration: 3 years
Minimum UOC for Award: 144 units of credit
Typical UOC per Semester: 24 units of credit

Program Description

Engineering Technology degrees within UNSW Canberra provide outstanding technology education to the future leaders of the Australian Defence Force and encourage excellence through contributions to the engineering profession, industry and community.

Program Objectives and Learning Outcomes

The BTech (Av) program is based on core engineering subjects, however, specialist components of the BTech (Av) program focus on the interface between technology, individuals and organizations in the aviation industry. The aim is to provide the student with a deep understanding of the various technological and human systems that contribute to the safe and efficient operation of aircraft.

A key element in this program is the focus on the role of people as key components in a technologically advanced and complex aviation system. There is particular emphasis on the role of human operators (e.g. pilots, air combat officers and air traffic controllers) in aviation infrastructure and safety management systems. Other courses such as aerodynamics and aircraft systems often incorporate problem-based learning informed by academic research and industrial practice. Electives and a final semester project enable students to pursue particular interests both within and outside the specialist discipline.
The BTech (Av) program is designed for potential pilots, navigators and air traffic controllers entering the Australian Defence Force. It is differentiated from the BTech (Aero) program in that there is greater focus on the role of humans in the operation of complex aerospace systems. This program does not provide a short articulation pathway to a Bachelor of Engineering.

**Program Structure**
The BTech (Av) program is grounded in foundation science and engineering, therefore all first year courses are common to aerospace and mechanical engineering streams. In second and third year the program diverges into an aviation specialist stream.

**First Year Program**
- ZEIT1101 Computational Problem Solving
- ZEIT1500 Statics
- ZEIT1501 Engineering Practice
- ZEIT1502 Dynamics
- ZPEM1303 Engineering Mathematics 1A
- ZPEM1304 Engineering Mathematics 1B
- ZPEM1501 Physics 1A
- ZPEM1502 Physics 1B

**Second Year Program**
- ZEIT2502 Fundamentals of Flight
- ZEIT2800 Introduction to Aviation
- ZEIT2802 Aircraft Systems for Aviators
- ZEIT2803 Aviation Safety
- ZPEM2302 Mathematics Tools for Science
- ZPEM2506 Physics 2A

And 2 x General Education courses

**Third Year Program**
- ZEIT3504 Aircraft and Systems Design 1
- ZEIT3801 Advanced Aviation Safety
- ZEIT3803 Air Traffic Management
- ZEIT3804 Behavioural Science Project and Practical Experience
- ZEIT3805 Airport Operations and Systems
- ZINT2100 Introduction to Cyber-Security

and 2 x Technical Elective courses

**Technical Elective Courses**
- ZBUS3103 Human Resource Management
- ZEIT2307 Capability Option Analysis
- ZEIT2403 Introduction to Operations Research
- ZEIT3406 Quantitative Operations Research
- ZEIT3501 Engineering Materials
- ZEIT3505 Flight Dynamics and Aircraft Control
- ZEIT4505 Mech & Aero Eng Mgmt
- ZEIT4702 Instrumentation
- ZPEM3501 Dynamics of Weather and Climate

Upper level courses from BE (Aero) or other programs may be taken with the Program Coordinator’s approval.

Students must select one General Education course from each of the following groups:

**Group 1:** ZGEN2222 Introduction to Strategic Studies, OR ZGEN2801 Strategy, Management and Leadership; AND

**Group 2:** ZGEN2240 Introduction to Military Ethics, OR ZGEN2215 Law, Force and Legitimacy
Academic Rules

1. UNSW Canberra Regulations for Undergraduate Students

1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.

1.2 A student must comply with the UNSW Canberra Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Technology (Aviation) take precedence over the UNSW Canberra Regulations for Undergraduate Students.

2. Program Rules Dictionary

2.1 The degree of Bachelor of Technology (Aviation) shall be conferred as a ‘Pass with Distinction’ when a Distinction level performance based on a weighted average mark (WAM) of at least 75% has been achieved in all courses completed since enrolment at UNSW.

2.2 To qualify for the degree of Bachelor of Technology (Aviation) a student shall normally be enrolled for a minimum of six semesters and gain a minimum of 144 units of credit (normally 24 UOC in each full-time semester).

2.3 A student completing a Standard Program shall complete courses, in the years prescribed, as set out in the relevant schedule.

2.4 A student completing a Non-Standard Program shall, subject to the requirements of Rule 2.5 (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.

2.5 Before a student’s enrolment will be accepted for any course, the student must have completed the relevant pre-requisite courses shown in the Course Catalogue, except where the School Undergraduate Coordinator for the appropriate course approves otherwise.

3. Practical Experience Requirements

Before graduation a student shall complete 40 days of approved practical engineering/aviation experience which must be done in blocks of at least 20 working days each where practicable and where each block must be in the service of a single provider. 20 days of appropriate service training may be counted towards this total.

Engineering Degrees

The school offering engineering degrees within UNSW Canberra aims to provide outstanding engineering education to the future leaders of the Australian Defence Force and to pursue excellence through contributions to the engineering profession, industry and the community.

The Bachelor of Engineering (BE) program is four years in duration, and the degree is awarded as an Honours degree. The engineering programs at UNSW Canberra have been granted full accreditation by Engineers Australia. All Bachelor of Engineering degrees have the engineering specialisation stipulated.

Except for Electrical Engineering and those in the Chief of Defence Force Students Program, first-year engineering and technology students enrol in a common program taking foundation science and engineering courses. In second and increasingly in third and fourth years the programs diverge into their specialties although there are some courses that span across programs in all years. A key element in all years is the design stream which emphasises complex problem solving. Other streams such as structures, materials, hydraulics, environmental engineering, geotechnics stability, control, thermofluid dynamics, mechanics and project management often incorporate project based learning informed by academic research and industrial practice. Electives and a final year thesis or integrated design enable students to pursue particular interests both within and outside the specialist discipline.

At the end of the program students are expected to meet the graduate attributes of the University and Stage 1 Competencies of Engineers Australia, ready to practise in their chosen profession and with the ingenuity and resourcefulness to meet rapid technological change.
4471 Electrical Engineering (Honours)

Typical Duration: 4 years
Minimum UOC for Award: 192 units of credit
Typical UOC per Semester: 24 units of credit
Related Program: 4478 Electrical Engineering (Hons) (CDF)

Program Description

Engineering degrees offered by UNSW Canberra aim 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 Bachelor of Engineering (Honours) in Electrical Engineering is of four years duration and the degree may be awarded at Honours Class I, Honours Class II, Division I or Honours Class II, Division II. These Honours levels will be displayed on the final testamur. Candidates who do not achieve Honours Class 1 or 2 will receive a Bachelor of Engineering (Honours) in Electrical Engineering with no honours level displayed.

The Bachelor of Engineering (Honours) in Electrical Engineering program at UNSW Canberra has been granted full accreditation by Engineers Australia and has been recognised by the Institute of Electrical and Electronics Engineers.

Program Objectives and Graduate Attributes

The Bachelor of Engineering (Honours) 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. Most courses in the first three years of the program are common for all electrical engineering students. In the fourth year students have the option to select specialty topics 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 (Honours) in Electrical Engineering degree requires 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 ZEIT) and courses taught by other Schools within UNSW Canberra.

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 enrol concurrently in courses from more than one year of the program.

**First Year Program**

- ZEIT1101 Computational Problem Solving
- ZEIT1102 Introduction to Programming
- ZEIT1206 Design of Electronic Circuits 1
- ZEIT1208 Introduction to Electrical Engineering
- ZPEM1303 Engineering Mathematics 1A
- ZPEM1304 Engineering Mathematics 1B
- ZPEM1501 Physics 1A
- ZPEM1502 Physics 1B

**Second Year Program**

- ZEIT2102 Computer Technology
- ZEIT2103 Data Structures
- ZEIT2207 Design of Electronic Circuits 2
- ZEIT2208 Programmable Digital Systems
- ZINT2100 Introduction to Cyber-Security
- ZPEM2309 Engineering Mathematics 2A
- ZPEM2310 Engineering Mathematics 2B
- ZPEM2502 Physics 2B

**Third Year Program**

- ZEIT3215 Signals and Systems
- ZEIT3216 Design of Electronic Circuits 3
- ZEIT3218 Communications Techniques
- ZEIT3220 Engineering Electromagnetics
- ZEIT3221 Digital Signal Processing and Control
- ZEIT3502 Vibration and Control Engineering
- Plus 2 x General Education courses

**Fourth Year Program**

- ZEIT4222 Systems Engineering
- ZEIT4224 Power and Machines
- ZEIT4230 Electrical Engineering Design Practice
- ZEIT4500 Engineering Project A
- ZEIT4501 Engineering Project B

Students must undertake 18 UOC of technical elective courses selected from the courses listed below. Students may select a maximum of one course from Group B below.

**Technical Elective Courses**

**Group A**

- ZEIT4215 Occasional Option 1: Underwater Communication
- ZEIT4216 Occasional Option 2
- ZEIT4217 Occasional Option 3
- ZEIT4218 Occasional Option 4
- ZEIT4225 Satellite Communications
- ZEIT4226 Digital Image Processing
- ZEIT4227 Radar Techniques and Applications
- ZEIT4229 Navigational Systems
- ZEIT4297 Project Extension
- ZEIT4702 Instrumentation
- ZEIT4705 Marine Project

**Group B**

- ZEIT3102 Cryptography
- ZEIT3110 Service Management
- ZEIT3113 Computer Languages and Algorithms
- ZEIT3114 Inter-networking
- ZEIT3302 Software Project Management
- ZEIT3404 Simulation

Students may choose to specialise by taking all elective courses in the following areas of interest:

**Marine Stream**

- ZEIT4702 Instrumentation
- ZEIT4705 Marine Project

Note: Enrolment in ZEIT4216, ZEIT4217 and ZEIT4218 requires the approval of the SEIT Director of Undergraduate Studies.

Upper level courses from other programs may be taken with the approval of the SEIT Director of Undergraduate Studies. Not all electives may be offered in any year.

Students must select one General Education course from each of the following groups:

**Group 1:** ZGEN2222 Introduction to Strategic Studies, OR ZGEN2801 Strategy, Management and Leadership;

**AND**

**Group 2:** ZGEN2240 Introduction to Military Ethics, OR ZGEN2215 Law, Force and Legitimacy
1. UNSW Canberra Regulations for Undergraduate Students

1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.

1.2 A student must comply with the UNSW Canberra Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Engineering (Honours) in Electrical Engineering take precedence over the UNSW Canberra Regulations for Undergraduate Students.

2. Program Rules:

2.1 The degree of Bachelor of Engineering (Honours) in Electrical Engineering shall be conferred as a Bachelor Honours degree at Level 8 in the AQF. Honours in recognition of meritorious performance may be awarded in the following categories:

- Honours Class I
- Honours Class II, Division I
- Honours Class II, Division II

Where candidates do not achieve Honours Class 1 or 2, the Class of Honours is not displayed.

2.1.1 The Class of Honours is calculated as follows:

- Honours Class 1: Honours WAM of at least 80.0 and Thesis Mark of at least 65
- Honours Class 2 Division 1: Honours WAM of at least 75.0 and Thesis Mark of at least 65
- Honours Class 2 Division 2: Honours WAM of at least 65.0 and Thesis Mark of at least 65

Courses will be weighted according to the following:

<table>
<thead>
<tr>
<th>Foundation (Level 2 and 3 courses)</th>
<th>Disciplinary (Level 4 courses not including final year projects)</th>
<th>Thesis (Final year projects)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

2.2 To qualify for the degree of Bachelor of Engineering (Honours) in Electrical 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 prerequisite courses shown in the Course Catalogue, except where the Course Authority for the appropriate course approves otherwise.

3. Practical Experience Requirements

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.

Service Training and Practical Experience Requirements

Service training conducted during the degree program is recognised as partially satisfying practical experience requirements in the following ways:

- Naval Midshipmen, 30 days for experience gained at a defence establishment between second and third years. (Time at sea prior to arrival at UNSW Canberra at ADFA is not eligible for consideration.)
- Army Cadets, 30 days for the year spent at Royal Military College between third and fourth years.
- Air Force Cadets, 30 days for experience gained at a defence establishment between second and third years.
4472 Aeronautical Engineering (Honours)

Typical Duration: 4 years
Minimum UOC for Award: 192 units of credit
Typical UOC per Semester: 24 units of credit
Related Program: 4476 Aeronautical Engineering (Hons) (CDF)

Program Description
Engineering degrees offered by UNSW Canberra aim to provide outstanding engineering education to the future leaders of the Australian Defence Force and to pursue excellence through contributions to the engineering profession, industry and the community.

The Bachelor of Engineering (Honours) in Aeronautical Engineering is of four years duration and the degree may be awarded at Honours Class I, Honours Class II, Division I or Honours Class II, Division II. These Honours levels will be displayed on the final testamur. Candidates who do not achieve Honours Class 1 or 2 will receive a Bachelor of Engineering (Honours) in Aeronautical Engineering with no honours level displayed.

The engineering programs at UNSW Canberra have been granted full accreditation by Engineers Australia.

Program Objectives and Graduate Attributes
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 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 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.

At the end of the program students are expected to meet the graduate attributes of the University and Stage 1 Competencies of Engineers Australia, ready to practise in their chosen profession and with the ingenuity and resourcefulness to meet rapid technological change.

Program Structure
The Bachelor of Engineering (Honours) in Aeronautical Engineering degree requires 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 ZEIT) and courses taught by other Schools within UNSW Canberra.

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 enrol concurrently in courses from more than one year of the program.

First Year Program
ZEIT1101 Computational Problem Solving
ZEIT1500 Statics
ZEIT1501 Engineering Practice
ZEIT1502 Dynamics
ZPEM1303 Engineering Mathematics 1A
ZPEM1304 Engineering Mathematics 1B
ZPEM1501 Physics 1A
ZPEM1502 Physics 1B
Second Year Program
ZEIT2500 Thermofluids
ZEIT2501 Mechanical and Electronic Design
ZEIT2502 Fundamentals of Flight
ZEIT2503 Fluid Mechanics
ZEIT2504 Mechanics of Solids
ZINT2501 Engineering Materials and Chemistry
ZPEM2309 Engineering Mathematics 2A
ZPEM2310 Engineering Mathematics 2B

Third Year Program
ZEIT3500 Engineering Structures
ZEIT3501 Engineering Materials
ZEIT3503 Aerodynamics
ZEIT3504 Aircraft and Systems Design 1
ZEIT3505 Flight Dynamics and Aircraft Control
ZINT2100 Introduction to Cyber-Security
Plus 2 x General Education courses

Fourth Year Program
ZEIT4500 Engineering Project A
ZEIT4501 Engineering Project B
ZEIT4502 Aircraft Design 2
ZEIT4503 Applied Thermodynamics and Propulsion
ZEIT4505 Mech & Aero Eng Mgmt

Students must undertake 18 UOC of Technical Elective courses selected from the courses listed below.

Technical Elective Courses
ZEIT3502 Vibration and Control Engineering
ZEIT4001 Engineering Structures 2
ZEIT4003 Computational Fluid Dynamics
ZEIT4006 Structural Integrity Assessment
ZEIT4007 Rotorcraft Engineering
ZEIT4008 Integrated Mechanical Design
ZEIT4011 Occasional Elective 1
ZEIT4012 Occasional Elective 2
ZEIT4013 Hypersonics
ZEIT4014 Impact Dynamics
ZEIT4504 Electrical and Mechanical Plant
ZEIT4702 Instrumentation
ZEIT6552 Advanced Rotorcraft Engineering

Students may choose to specialise by taking all elective courses in the following areas of interest:

Structural Integrity Stream
ZEIT4001 Engineering Structures 2
ZEIT4006 Structural Integrity Assessment
ZEIT4008 Integrated Mechanical Design

Rotorcraft Stream
ZEIT4006 Structural Integrity Assessment
ZEIT4007 Rotorcraft Engineering

High Performance Aerospace Vehicle Stream
ZEIT4003 Computational Fluid Dynamics
ZEIT4013 Hypersonics

Note: Enrolment in ZEIT4011 and ZEIT4012 require the approval of the SEIT Director of Undergraduate Studies.

Upper Level courses from other programs may be taken with approval from the SEIT Director of Undergraduate Studies. Not all electives may be offered in any year.

Students must select one General Education course from each of the following groups:

Group 1: ZGEN2222 Introduction to Strategic Studies, OR ZGEN2801 Strategy, Management and Leadership;
AND
Group 2: ZGEN2240 Introduction to Military Ethics, OR ZGEN2215 Law, Force and Legitimacy

Academic Rules
1. UNSW Canberra Regulations for Undergraduate Students

1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.

1.2 A student must comply with the UNSW Canberra Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Engineering (Honours) in Electrical Engineering take precedence over the UNSW Canberra Regulations for Undergraduate Students.
2. Program Rules:

2.1 The degree of Bachelor of Engineering (Honours) in Electrical Engineering shall be conferred as a Bachelor Honours degree at Level 8 in the AQF. Honours in recognition of meritorious performance may be awarded in the following categories:

Honours Class I
Honours Class II, Division I
Honours Class II, Division II

Where candidates do not achieve Honours Class 1 or 2, the Class of Honours is not displayed.

2.1.1 The Class of Honours is calculated as follows:

Honours Class 1: Honours WAM of at least 80.0 and Thesis Mark of at least 65

Honours Class 2 Division 1: Honours WAM of at least 75.0 and Thesis Mark of at least 65

Honours Class 2 Division 2: Honours WAM of at least 65.0 and Thesis Mark of at least 65

Courses will be weighted according to the following:

<table>
<thead>
<tr>
<th>Foundation</th>
<th>Disciplinary</th>
<th>Thesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

2.2 To qualify for the degree of Bachelor of Engineering (Honours) in Aeronautical 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 prerequisite courses shown in the Course Catalogue, except where the Course Authority for the appropriate course approves otherwise.

3. Practical Experience Requirements

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.

Service Training and Practical Experience Requirements

Service training conducted during the degree program is recognised as partially satisfying practical experience requirements in the following ways:

Naval Midshipmen, 30 days for experience gained at a defence establishment between second and third years. (Time at sea prior to arrival at UNSW Canberra at ADFA is not eligible for consideration.)

Army Cadets, 30 days for the year spent at Royal Military College between third and fourth years.

Air Force Cadets, 30 days for experience gained at a defence establishment between second and third years.

4473 Civil Engineering (Honours)

Typical Duration: 4 years

Minimum UOC for Award: 192 units of credit

Typical UOC per Semester: 24 units of credit

Related Program: 4477 Civil Engineering (CDF) (Hons)

Program Description

Engineering degrees offered by UNSW Canberra aim to provide outstanding engineering education to the future leaders of the Australian Defence Force and to pursue excellence through contributions to the engineering profession, industry and the community.

The Bachelor of Engineering (Honours) in Civil Engineering program is of four years duration and the degree may be awarded at Honours Class I, Honours Class II, Division I or Honours Class II, Division II. These honours levels will be displayed on the final testamur. Candidates who do not achieve Honours Class 1 or 2 will receive a Bachelor of Engineering (Honours) in Civil Engineering with no honours level displayed.
Program Objectives and Graduate Attributes

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, electronics 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.

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.

Program Structure

The Bachelor of Engineering (Honours) in Civil Engineering degree requires 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 ZEIT) and courses taught by other Schools within UNSW Canberra.

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 enrol concurrently in courses from more than one year of the program.

First Year Program

ZEIT1500 Statics
ZEIT1502 Dynamics
ZEIT1600 Introduction to Civil Engineering
ZPEM1303 Engineering Mathematics 1A
ZPEM1304 Engineering Mathematics 1B
ZPEM1305 Engineering Problem Solving
ZPEM1501 Physics 1A
ZPEM1502 Physics 1B

Second Year Program

ZEIT2500 Thermofluids
ZEIT2504 Mechanics of Solids
ZEIT2601 Soil Mechanics and Engineering Geology
ZEIT2602 Hydraulic Engineering
ZINT2100 Introduction to Cyber-Security
ZINT2501 Engineering Materials and Chemistry
ZPEM2309 Engineering Mathematics 2A
ZPEM2310 Engineering Mathematics 2B

Third Year Program

ZEIT3501 Engineering Materials
ZEIT3600 Structural Analysis
ZEIT3601 Environmental Engineering
ZEIT3602 Geotechnical Design
ZEIT3603 Design Steel and Timber Structures
ZEIT3604 Project Management Civil Engineering
Plus 2 x General Education courses

Fourth Year Program

ZEIT4500 Engineering Project A
ZEIT4501 Engineering Project B
ZEIT4600 Civil Design Practice
ZEIT4602 Design of Concrete Structures
ZEIT4604 Hydrology and Environmental Engineering Practice
ZEIT4605 Foundation and Pavement Engineering

Students must undertake 12 UOC of Technical Elective courses selected from the courses listed below.
Technical Elective Courses

ZEIT4002 Sustainability of Concrete Structures
ZEIT4003 Computational Fluid Dynamics
ZEIT4004 Geosynthetics and Ground Improvement
ZEIT4005 Naval Architecture
ZEIT4006 Structural Integrity Assessment
ZEIT4011 Occasional Elective 1
ZEIT4012 Occasional Elective 2
ZEIT4014 Impact Dynamics
ZEIT4504 Electrical and Mechanical Plant
ZEIT4601 Civil Design Practice Ext
ZEIT4603 Finite Element Methods
ZEIT4606 Durability of Concrete - not in AIMS
ZEIT4705 Marine Project

Students must select one General Education course from each of the following groups:

Group 1: ZGEN2222 Introduction to Strategic Studies, OR ZGEN2801 Strategy, Management and Leadership;

AND

Group 2: ZGEN2240 Introduction to Military Ethics, OR ZGEN2281 Law, Force and Legitimacy

Academic Rules

1. UNSW Canberra Regulations for Undergraduate Students

1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.

1.2 A student must comply with the UNSW Canberra Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Engineering (Honours) in Civil Engineering take precedence over the UNSW Canberra Regulations for Undergraduate Students.

2. Program Rules:

2.1 The degree of Bachelor of Engineering (Honours) in Civil Engineering shall be conferred as a Bachelor Honours degree at Level 8 in the AQF. Honours in recognition of meritorious performance may be awarded in the following categories:

Honours Class I
Honours Class II, Division I
Honours Class II, Division II

Where candidates do not achieve Honours Class 1 or 2, the Class of Honours is not displayed.

2.1.1 The Class of Honours is calculated as follows:

Honours Class 1: Honours WAM of at least 80.0 and Thesis Mark of at least 65
Honours Class 2 Division 1: Honours WAM of at least 75.0 and Thesis Mark of at least 65
Honours Class 2 Division 2: Honours WAM of at least 65.0 and Thesis Mark of at least 65

Courses will be weighted according to the following:

<table>
<thead>
<tr>
<th>Foundation (ie Level 2 and 3 courses)</th>
<th>Disciplinary (ie Level 4 courses (not including final year projects))</th>
<th>Thesis (ie Final year projects)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

2.2 To qualify for the degree of Bachelor of Engineering (Honours) in Civil 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 prerequisite courses shown in the Course Catalogue, except where the Course Authority for the appropriate course approves otherwise.
3. Practical Experience Requirements

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.

Service Training and Practical Experience Requirements

Service training conducted during the degree program is recognised as partially satisfying practical experience requirements in the following ways:

Naval Midshipmen, 30 days for experience gained at a defence establishment between second and third years. (Time at sea prior to arrival at UNSW Canberra at ADFA is not eligible for consideration.)

Army Cadets, 30 days for the year spent at Royal Military College between third and fourth years.

Air Force Cadets, 30 days for experience gained at a defence establishment between second and third years.

Program Objectives and Graduate Attributes

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 coordinating 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).

4474 Mechanical Engineering (Honours)

Typical Duration: 4 years
Minimum UOC for Award: 192 units of credit
Typical UOC per Semester: 24 units of credit
Related Program: 4478 Mechanical Engineering (CDF)

Program Description

All engineering degrees within UNSW Canberra aim to provide outstanding engineering education to the future leaders of the Australian Defence Force and to pursue excellence through contributions to the engineering profession, industry and the community. The Bachelor of Engineering (Honours) in Mechanical Engineering is of four years duration, and the degree may be awarded at Honours Class I, Honours Class II, Division I or Honours Class II, Division II. These honours levels will be displayed on the final testamur. Candidates who do not achieve Honours Class 1 or 2 will receive a Bachelor of Engineering (Honours) in Mechanical Engineering with no honours level displayed.

The Bachelor of Engineering (Honours) in Mechanical Engineering program at UNSW Canberra has been granted full accreditation by Engineers Australia.
Army Bachelor of Engineering (Honours) in Mechanical Engineering 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 Bachelor of Engineering (Honours) in Mechanical Engineering graduates will undertake courses to enhance their professional development as Naval officers and Marine Engineers before taking up postings at sea or ashore.

At the end of the program students are expected to meet the graduate attributes of the University and Stage 1 Competencies of Engineers Australia, ready to practise in their chosen profession and with the ingenuity and resourcefulness to meet rapid technological change.

**First Year Program**

- ZEIT1101 Computational Problem Solving
- ZEIT1500 Statics
- ZEIT1501 Engineering Practice
- ZEIT1502 Dynamics
- ZPEM1303 Engineering Mathematics 1A
- ZPEM1304 Engineering Mathematics 1B
- ZPEM1501 Physics 1A
- ZPEM1502 Physics 1B

**Second Year Program**

- ZEIT2500 Thermofluids
- ZEIT2501 Mechanical and Electronic Design
- ZEIT2503 Fluid Mechanics
- ZEIT2504 Mechanics of Solids
- ZEIT2700 Mechanics of Machines
- ZINT2501 Engineering Materials and Chemistry
- ZPEM2309 Engineering Mathematics 2A
- ZPEM2310 Engineering Mathematics 2B

**Third Year Program**

- ZEIT3500 Engineering Structures
- ZEIT3501 Engineering Materials
- ZEIT3502 Vibration and Control Engineering
- ZEIT3700 Mechanical Design 1
- ZEIT3701 Heat Transfer and Refrigeration
- ZINT2100 Intro to Cyber-Security
- Plus 2 x General Education courses

**Fourth Year Program**

- ZEIT4500 Engineering Project A
- ZEIT4501 Engineering Project B
- ZEIT4505 Mech & Aero Eng Mgmt
- ZEIT4700 Mechanical Design 2

Students must undertake 24UOC of Technical Elective courses selected from the courses listed below. Individual elective courses will not be delivered if there are too few enrolments in them. Mechanical engineering students are advised that it is advantageous if they enrol in the elective ZEIT4702 Instrumentation in Third Year and defer either ZINT2100 or a General Education course to First Semester in Fourth Year as Instrumentation is not only a stream core course for both the Marine and Land-based streams but a valuable preparatory course for the Engineering Project courses ZEIT4500/ZEIT4501.

**Technical Elective Courses**

- ZEIT4001 Engineering Structures 2
- ZEIT4003 Computational Fluid Dynamics
- ZEIT4005 Naval Architecture
- ZEIT4006 Structural Integrity Assessment
- ZEIT4007 Rotorcraft Engineering
- ZEIT4008 Integrated Mechanical Design
- ZEIT4011 Occasional Elective 1
- ZEIT4012 Occasional Elective 2
- ZEIT4014 Impact Dynamics
- ZEIT4503 Applied Thermodynamics and Propulsion
- ZEIT4504 Electrical and Mechanical Plant
- ZEIT4703 Land Mobility and Weapons
- ZEIT4704 Land Vehicles
- ZEIT4705 Marine Project

Note: The courses ZEIT4503 Applied Thermodynamics and Propulsion, ZEIT4704 Land Vehicles and ZEIT4705 Marine Project share some common teaching materials which make them mutually exclusive.

Note: Enrolment in ZEIT4011 and ZEIT4012 requires the approval of the SEIT Director of Undergraduate Studies.

Students may choose to specialise by taking all elective courses in the following areas of interest:
Marine Stream
ZEIT4005 Naval Architecture
ZEIT4504 Electrical and Mechanical Plant
ZEIT4702 Instrumentation
ZEIT4705 Marine Project

Land-based Stream
ZEIT4504 Electrical and Mechanical Plant
ZEIT4702 Instrumentation
ZEIT4703 Land Mobility and Weapons
ZEIT4704 Land Vehicles

Upper level courses from other programs may be taken with the approval of the SEIT Director of Undergraduate Studies. Not all electives may be offered in any year.

Students must select one General Education course from each of the following groups:

Group 1: ZGEN2222 Introduction to Strategic Studies, OR ZGEN2801 Strategy, Management and Leadership;

AND

Group 2: ZGEN2240 Introduction to Military Ethics, OR ZGEN2801 Strategy, Management and Leadership;

Academic Rules
1. UNSW Canberra Regulations for Undergraduate Students

1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.

1.2 A student must comply with the UNSW Canberra Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Engineering (Honours) in Electrical Engineering take precedence over the UNSW Canberra Regulations for Undergraduate Students.

2. Program Rules:

2.1 The degree of Bachelor of Engineering (Honours) in Mechanical Engineering shall be conferred as a Bachelor Honours degree at Level 8 in the AQF. Honours in recognition of meritorious performance may be awarded in the following categories:

- Honours Class I
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Courses will be weighted according to the following:

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</table>

2.2 To qualify for the degree of Bachelor of Engineering (Honours) in Mechanical 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 prerequisite courses shown in the Course Catalogue, except where the Course Authority for the appropriate course approves otherwise.

3. Practical Experience Requirements

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.

Service Training and Practical Experience Requirements

Service training conducted during the degree program is recognised as partially satisfying practical experience requirements in the following ways:

Naval Midshipmen, 30 days for experience gained at a defence establishment between second and third years. (Time at sea prior to arrival at UNSW Canberra at ADFA is not eligible for consideration.)

Army Cadets, 30 days for the year spent at Royal Military College between third and fourth years.

Air Force Cadets, 30 days for experience gained at a defence establishment between second and third years.
Bachelor Degrees in the Chief of Defence Force Students Programs

General Description
The Chief of Defence Force Students (CDFS) Programs in Arts, Business, Engineering, Science and Technology - Aeronautical offer the opportunity for students entering UNSW Canberra with a high Entrance Rank, and who maintain a high level of performance in their studies, to undertake research in a range of disciplines that will develop their critical thinking and independent research skills beyond those available in the standard Bachelor Degree programs.

The range of CDFS Programs, described in detail in the following sections, is characterised by the inclusion of specialist courses in critical analysis and/or research methods appropriate to the area of study. All programs also include discipline-specific research projects. The research projects will be supervised by academic staff from the relevant discipline. With the approval of the relevant Heads of Schools, multi- or cross-disciplinary projects may be undertaken. Students in the research courses may work independently or as part of a team, depending on the nature of the project undertaken, though all students will submit individual assessment.

Final assessment will be based on a written paper or report and oral presentations.

Throughout the program, and in addition to completing the courses given in the following schedules, students will be engaged with cohort activities so as to develop and maintain their interest and continuing involvement in the program via invited lectures, seminars, general reading and social events.

The CDFS Programs are of three-years’ duration in Arts, Business, Science and Technology - Aeronautical. A separate Honours year may be undertaken. The programs in Engineering are all of four-years’ duration and are awarded with Honours.

Objectives and Learning Outcomes
Each of the CDFS Programs has objectives and learning outcomes in common with the standard Bachelor degree in the same area, but extends the educational principles embodied in the standard degree to a higher level. In the programs, students will be exposed to courses in critical analysis and/or research methods in the discipline(s) of their chosen program, which will offer significant extensions to the ideas and analysis normally available in the standard degree program. This will allow all CDFS to undertake research-oriented courses at the appropriate level through their program, thereby integrating research into their studies in a way that is not available in the standard degree. The individual projects undertaken in close association with academic staff on research topics of mutual interest underpin the CDFS Programs and give students the ability to develop their full potential.

Program Rules Dictionary
Terms used in the CDFS Programs are the same as those used for the standard Bachelor degree programs.

UNSW Canberra Undergraduate Regulations
A student must comply with the UG Regulations for Undergraduate Students. In the event of a conflict, the rules for the relevant Bachelor Degree in the CDFS Programs take precedence over the Faculty Regulations for Undergraduate Students (refer to http://www.unsw.adfa.edu.au/study/undergraduate/defence/programs)
Admission to CDFS Programs

A student for enrolment in a CDFS Program shall hold an Entrance Rank equivalent to an ATAR equal to or greater than that specified below for the degree concerned.

<table>
<thead>
<tr>
<th>Degree Programs</th>
<th>Entrance Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Arts (CDFSP)</td>
<td>95</td>
</tr>
<tr>
<td>Bachelor of Science (CDFSP)</td>
<td>95</td>
</tr>
<tr>
<td>Bachelor of Business (CDFSP)</td>
<td>95</td>
</tr>
<tr>
<td>Bachelor of Engineering in Aeronautical Engineering (CDFSP)</td>
<td>98</td>
</tr>
<tr>
<td>Bachelor of Engineering in Civil Engineering (CDFSP)</td>
<td>98</td>
</tr>
<tr>
<td>Bachelor of Engineering in Electrical Engineering (CDFSP)</td>
<td>98</td>
</tr>
<tr>
<td>Bachelor of Engineering in Mechanical Engineering (CDFSP)</td>
<td>98</td>
</tr>
<tr>
<td>Bachelor of Information Technology (CDFSP)</td>
<td>98</td>
</tr>
<tr>
<td>Bachelor of Technology – Aeronautical Engineering (CDFSP)</td>
<td>98</td>
</tr>
</tbody>
</table>

Transfer to CDFS Programs

A student enrolled in a standard Bachelor Degree Program may, at the discretion of the relevant Head of School, transfer to the CDFS Program in the same degree area upon completion of a minimum of 24 units of credit in either semester of the Year 1 program with a semester-based Weighted Average Mean (WAM) equal to or greater than that specified below for the degree concerned. The latest date by which students may transfer to the CDFS Program in the same degree area is for the commencement of Semester 1 of the Year 2 program.

<table>
<thead>
<tr>
<th>Degree Programs</th>
<th>WAM (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Arts (CDFSP)</td>
<td>80</td>
</tr>
<tr>
<td>Bachelor of Science (CDFSP)</td>
<td>85</td>
</tr>
<tr>
<td>Bachelor of Business (CDFSP)</td>
<td>85</td>
</tr>
<tr>
<td>Bachelor of Engineering in Aeronautical Engineering (CDFSP)</td>
<td>85</td>
</tr>
<tr>
<td>Bachelor of Engineering in Civil Engineering (Hons) (CDFSP)</td>
<td>80</td>
</tr>
<tr>
<td>Bachelor of Engineering in Electrical Engineering (Hons) (CDFSP)</td>
<td>80</td>
</tr>
<tr>
<td>Bachelor of Engineering in Mechanical Engineering (Hons) (CDFSP)</td>
<td>80</td>
</tr>
<tr>
<td>Bachelor of Technology – Aeronautical Engineering (CDFSP)</td>
<td>80</td>
</tr>
</tbody>
</table>

Progression through CDFS Programs

To continue as a student in the CDFS Program, a student shall normally achieve a semester-based Weighted Average Mean (WAM) equal to or greater than that specified below for the degree concerned. Candidature shall be reviewed at the end of each academic semester. The relevant Head(s) of School may exercise discretion in decisions relating to candidature.

<table>
<thead>
<tr>
<th>Degree Programs</th>
<th>WAM (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Arts (CDFSP)</td>
<td>80</td>
</tr>
<tr>
<td>Bachelor of Business (CDFSP)</td>
<td>80</td>
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<tr>
<td>Bachelor of Engineering in Aeronautical Engineering (CDFSP)</td>
<td>80</td>
</tr>
<tr>
<td>Bachelor of Engineering in Civil Engineering (Hons) (CDFSP)</td>
<td>80</td>
</tr>
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<td>Bachelor of Engineering in Mechanical Engineering (Hons) (CDFSP)</td>
<td>80</td>
</tr>
<tr>
<td>Bachelor of Science (CDFSP)</td>
<td>85</td>
</tr>
<tr>
<td>Bachelor of Technology – Aeronautical Engineering (CDFSP)</td>
<td>80</td>
</tr>
</tbody>
</table>

Credit Transfer

A student transferring between the CDFS Program and the standard Bachelor Degree Program in the same degree area will be granted credit for all courses successfully completed.

General Education Courses

As is the case for standard Bachelor Degree Programs, all CDFS Programs require the completion of 12 units of credit of General Education courses, normally taken across Years 2 and 3.

Students must select one General Education course from each of the following groups:

Group 1: ZGEN2222 Introduction to Strategic Studies, OR ZGEN2801 Strategy, Management and Leadership;

AND

Group 2: ZGEN2215 Law, Force and Legitimacy, OR ZGEN2240 Introduction to Military Ethics.
Honours

(a) Honours in the Bachelor of Arts (4511), Bachelor of Business (4512), Bachelor of Information Technology (4514) and Bachelor of Science (4513) Degree Programs is awarded on the basis of a separate fourth year of study.

(b) Honours in the various Bachelor of Engineering degree programs is calculated based on the Weighted Average Mean over years 2, 3 and 4 of the program, with additional weighting given to the final year project.

(c) Honours is not available in the Bachelor of Technology – Aeronautical Engineering (CDF).

**4461 Arts (CDF)**

<table>
<thead>
<tr>
<th>Typical Duration:</th>
<th>3 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum UOC for Award:</td>
<td>144 units of credit</td>
</tr>
<tr>
<td>Typical UOC per Semester:</td>
<td>24 units of credit</td>
</tr>
<tr>
<td>Related Programs:</td>
<td>4400 Arts, 4511 Arts (Honours)</td>
</tr>
</tbody>
</table>

Academic Rules

1. UNSW Canberra Regulations for Undergraduate Students

1.1 A student must comply with the UNSW Canberra Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Arts (Chief of Defence Force) take precedence over the UNSW Canberra Regulations for Undergraduate Students.

1.2 Students should read the CDFSP Introductory pages for information related to the transfer in and out of the credit arrangements. See page 40 and 41.

2. Program Rules Dictionary

2.1 The Bachelor of Arts (CDF) program must include courses totaling no less than 144 UOC.

2.2 At least 96 UOC must be from courses in the Arts discipline areas listed below, of which at least 48 UOC must be in Level 2 and Level 3 courses.

2.3 Students must complete two majors in Arts disciplines. A major consists of courses totaling no less than 48 UOC, with at least 36 UOC from Level 2 and 3 courses, with at least 18 UOC at Level 3.

2.4 Students must complete four designated CDF courses as identified in the Sample Program (viz, ZHSS2901, ZHSS2902, ZHSS3901 and ZHSS3902. These designated CDF courses will count towards one or both of the students Arts majors.

2.5 Students are able to include courses from Business, Information Technology, Engineering and Science in the program, subject to timetabling constraints and prerequisites.

2.6 Students are required to include 12 UOC of General Education courses, normally taken in the second or third year of study.

Program Objectives and Graduate Attributes

At the conclusion of this program, students should be able to:

1. Be able to analyse, synthesise and consolidate knowledge from a range of sources.

2. Be able to apply critical understanding and analysis to written, oral and audio-visual texts in the humanities and social sciences.

3. Demonstrate high skill levels in written and oral presentation, analysis and argument

4. Demonstrate a capacity to apply these studies in a changing world environment and within the profession that they are most likely to inhabit.

5. Be able to apply a critical awareness of international trends and of intellectual context of social, technological and cultural change.

6. Be able to demonstrate an understanding of current interpretations and potential future developments in both content and approach in the disciplines in which they have undertaken a major sequence.

Program Structure

The following Arts disciplines are available in the BA (CDF):

- Business*
- English and Media Studies
- Geography
- History
- Indonesian Studies
- International & Political Studies
## Sample Program

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Arts Major 1</th>
<th>Arts Major 2</th>
<th>CDF Courses ###</th>
<th>Free Electives</th>
<th>General Education plus Prescribed Electives</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td>6 UOC</td>
<td>6 UOC</td>
<td></td>
<td>12 UOC</td>
<td></td>
<td>24 UOC</td>
</tr>
<tr>
<td>Semester 2</td>
<td>6 UOC</td>
<td>6 UOC</td>
<td></td>
<td>12 UOC</td>
<td></td>
<td>24 UOC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Arts Major 1</th>
<th>Arts Major 2</th>
<th>CDF Courses ##</th>
<th>Free Electives</th>
<th>General Education plus Prescribed Electives</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td>CDF Course</td>
<td>6 UOC</td>
<td>ZHSS2901</td>
<td>6 UOC</td>
<td></td>
<td>24 UOC</td>
</tr>
<tr>
<td>Semester 2</td>
<td>6 UOC &amp; CDF Course</td>
<td>12 UOC</td>
<td>ZHSS2902</td>
<td>6 UOC</td>
<td>24 UOC</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 3</th>
<th>Arts Major 1</th>
<th>Arts Major 2</th>
<th>CDF Courses ##</th>
<th>Free Electives</th>
<th>General Education plus Prescribed Electives</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td>6 UOC &amp; CDF Course</td>
<td>6 UOC</td>
<td>ZHSS3901</td>
<td>6 UOC</td>
<td>24 UOC</td>
<td></td>
</tr>
<tr>
<td>Semester 2</td>
<td>CDF Course</td>
<td>12 UOC</td>
<td>ZHSS3902</td>
<td>6 UOC</td>
<td>24 UOC</td>
<td></td>
</tr>
</tbody>
</table>

| Total   | 48 UOC       | 48 UOC       | 24 UOC         | 24 UOC         |                                           | 144 UOC|

# At least three of the four disciplines chosen in Year 1 must be Arts disciplines.

### CDF Courses may be taken in either or both Arts majors, but may only be counted simultaneously in each major.

* Business – Candidates majoring in Business may wish to undertake the CDF Program courses offered by the School of Business instead of those offered in the Schedule above. Students wishing to do this should look at the schedule for the Business CDF Program to see when the Business CDF Program courses are scheduled. Consultation with the HASS and/or Business CDF Program Coordinator is strongly recommended.

** Geography – Candidates majoring in Business may wish to undertake the CDF Program courses offered by the School of Physical, Environmental and Mathematical Sciences (Geography) instead of those offered in the Schedule above. Consultation with the HASS and/or PEMS CDF Program Coordinator is strongly recommended.
4462 Business (CDF)

Typical Duration: 3 years
Minimum UOC for Award: 144 units of credit
Typical UOC per Semester: 24 units of credit
Related Program: 4405 Business, 4512 Business (Honours)

Academic Rules
1. Faculty Regulations for Undergraduate Students
1.1 A student must comply with the Faculty Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Business take precedence over the Faculty Regulations for Undergraduate Student (refer to http://www.unsw.adfa.edu.au/study/undergraduate/defence/programs)
1.2 Students should read the CDFSP Introductory pages for information related to the transfer in and out of the credit arrangements. See page 40 and 41.

2. Program Rules:
2.1 To qualify for the degree of Bachelor of Business, a student shall normally be enrolled for a minimum of six semesters and gain a minimum of 144 UOC (normally 24 UOC in each full-time semester), including:
   (a) Level I courses totalling 48 units of credit, with 24 UOC chosen from Business core courses;
   (b) Upper-Level Business core courses totalling 60 UOC;
   (c) Upper-Level Business electives totalling 12 UOC;
   (d) Compulsory prescribed elective course ZINT2100 Introduction to Cyber-Security: Policy and Operations;
   (e) A minimum of 12 UOC of General Education courses;
   (f) 6 units of credit taken from Upper-Level courses offered by Schools other than the School of Business.
2.2 No more than 48 UOC may be gained for Level I courses.
2.3 At least 96 UOC must be taken from Upper-Level courses.
2.4 As is the case for standard Bachelor Degree Programs, all CDFS Programs require the completion of 12 UOC of General Education courses, normally taken across Years 2 and 3.

Program Objectives and Graduate Attributes
On successful completion of the Bachelor of Business (CDF), students will have the ability to:
- Understand and critically apply competing theories to leadership situations work effectively within a team and manage team processes
- Communicate ideas clearly, coherently and concisely in both written and oral formats
- Consider professional ethics and cultural context when making decisions
- Understand, integrate and apply foundational disciplinary knowledge and concepts
- Apply basic analytical techniques to justify business decisions
- Critique research literature and write a report based on original research

Program Structure

<table>
<thead>
<tr>
<th></th>
<th>Business Core</th>
<th>Business Electives</th>
<th>Prescribed Elective</th>
<th>Electives</th>
<th>General Education</th>
<th>UOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>24</td>
<td></td>
<td>24</td>
<td></td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Stage 2</td>
<td>36</td>
<td></td>
<td>ZINT2100</td>
<td>6</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Stage 3</td>
<td>24</td>
<td>12</td>
<td></td>
<td>6</td>
<td>6</td>
<td>48</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>12</td>
<td>6</td>
<td>30</td>
<td>12</td>
<td>144</td>
</tr>
</tbody>
</table>
The first year of the BBus(CDF) comprises four foundation courses which are compulsory courses:

**Level 1 Business Core Courses**
- ZBUS1101 Organisational Behaviour
- ZBUS1102 Business Economics
- ZBUS1103 Intro to Accounting
- ZBUS1104 Foundations of Management

The second and third year of the Bachelor of Business (CDF) comprises core Business courses and Business-related electives, one compulsory course and free elective course, and General Education courses.

**Compulsory Prescribed Elective Course:**
- ZINT2100 Intro to Cyber-Security

**General Education Courses:**
- Plus x 2 General Education Courses

Students must select one General Education course from each of the following groups:

1. **Group 1:** ZGEN2222 Introduction to Strategic Studies, OR ZGEN2801 Strategy, Management and Leadership;
   
   **AND**
   
   **Group 2:** ZGEN2240 Introduction to Military Ethics, OR ZGEN2215 Law, Force and Legitimacy

**Upper-Level Business Core Courses:**
- ZBUS2101 Business Law
- ZBUS2302 Leadership
- ZBUS2820 International Business
- ZBUS2901 Business Research
- ZBUS2902 Research Project in Business 1
- ZBUS3104 Business Capstone
- ZBUS3303 Logistics Management
- ZBUS3901 Research Project in Business 2
- ZBUS3902 Research Project in Business 3
- ZPEM2312 Fundamentals of Data Analysis

**Upper-Level Business Electives - students must complete 2 courses from the following:**
- ZBUS2202 Australia & the World Economy
- ZBUS2207 Managing the Public Sector
- ZBUS2401 Financial Management
- ZBUS3102 Project Management
- ZBUS3103 Human Resource Management
- ZBUS3203 The Making of Economic Policy
- ZBUS3206 Managing Across Cultures

ZEIT2001 Managing Info Systems
ZEIT2307 Capability Option Analysis
ZEIT3104 Electronic Business
ZHSS2601 Introductory Business Ethics

Note: ZBUS2202 and ZBUS3203 have a pre-requisite of ZBUS1102 Business Economics

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**4463 Science (CDF)**

**Typical Duration:** 3 years

**Minimum UOC for Award:** 144 units of credit

**Typical UOC per Semester:** 24 units of credit

**Related Program:**
- 4410 Science,
- 4513 Science (Honours)

**Academic Rules**

1. **Faculty Regulations for Undergraduate Students**
   
   1.1 A student must comply with the Faculty Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Science (Chief of Defence Force) program take precedence over the Faculty Regulations for Undergraduate Students.

   1.2 Students should read the CDFSP Introductory pages for information related to the transfer in and out of the credit arrangements. See pages 40 and 41.

2. **Degree Requirements**

   2.1 To qualify for the degree of Bachelor of Science (CDF), a candidate shall normally be enrolled for a minimum of six semesters and gain a minimum of 144 UOC, normally 24 units in each full-time semester.

   2.2 A candidate completing the program shall complete courses, in the years prescribed, as set out in the relevant schedule.

   2.3 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.

   2.4 A candidate for the BSc (CDF) shall complete courses as set out in the Program Structure below.
3. Program Rules:

3.1 The BSc program must include courses totaling no less than 144 UOC.

3.2 Students must select two Science discipline areas in which they will major. Each major consists of courses totaling 48 UOC with at least 36 UOC from Level 2 and 3 courses, and with at least 18 UOC at Level 3.

3.3 Students must complete four designated CDF courses as identified in the Program Structure below.

3.4 Students must complete at least one of the prescribed elective courses ZPEM2312 Fundamentals of Data Analysis or ZINT2100 Introduction to Cyber-Security: Policy and Operations. These two courses do not count towards the students’ 96 UOC for their Science discipline area.

Exclusion: Students who complete ZPEM1301 Mathematics 1A or ZPEM1303 Engineering Mathematics 1A will be exempt from ZPEM2312, and must complete ZINT2100 in semester 1 of their second year of study.

3.5 Students are able to include a course from Business, Engineering or Arts in the program, subject to timetabling constraints in Semester 1 of their first year of study.

3.6 Students are required to include 12 UOC of General Education courses, taken in the second year of study.

3.7 No more than 48 UOC may be gained for Level I courses.

3.8 At least 96 UOC must be taken from Upper Level courses.

Program Structure

The following disciplines are available in the BSc (CDF):

- Aviation
- Chemistry
- Computer Science
- Geography
- Information Systems
- Mathematics
- Oceanography
- Operations Research
- Physics

Sample Program

A student must obtain, normally over three years of study, a minimum of 144 units of credit, which must include one of the following two options:

| Year 1 | Semester 1 | 6 UOC | 6 UOC | ZPEM1901 or ZEIT1901 | 6 UOC | 6 UOC | 24 |
| Year 1 | Semester 2 | 6 UOC | 6 UOC | ZPEM2312 or ZINT2100 | 6 UOC | 24 |
| Year 2 | Semester 1 | 6 UOC | 6 UOC | ZPEM2901 or ZEIT2901 | 6 UOC | 24 |
| Year 2 | Semester 2 | 6 UOC | 6 UOC | ZPEM3901* or ZEIT3901 | 24 |
| Year 3 | Semester 1 | 6 UOC | 12 UOC | ZPEM3902+ or ZEIT3902+ | 24 |
| Year 3 | Semester 2 | 12 UOC | 6 UOC | | 24 |
| Total | 42 * | 42 * | 24 | 12 | 12 | 12 | 144 |

* This course will be counted towards Major 1.

+ This course will be counted towards Major 2.
4468 Technology (Aero Engineering) (CDF)

Typical Duration: 3 years
Minimum UOC for Award: 144 units of credit
Typical UOC per Semester: 24 units of credit
Related Program: 4430 Technology (Aeronautical Eng)

Program Description
The Chief of Defence Force Students Program in Engineering offers the opportunity for students entering UNSW Canberra with a high Entrance Rank, and who maintain a high level of performance in their studies, to undertake research in a range of disciplines that will develop their critical thinking and independent research skills beyond that available in the standard Engineering program.

In Year 1 of the program, students will be engaged with cohort activities so as to develop and maintain their interest and continuing involvement in the program via invited lectures, seminars, general reading and social events. Commencing in Year 2, the research projects, each offered as separate courses, will be supervised by academic staff from the same or closely related discipline. Students in the research courses may work independently or as part of a team, depending on the nature of the project undertaken, though all students will submit individual assessment. Final assessment, due by the end of session, will be based on a written paper and an oral presentation.

The Program is of three years duration, and is awarded as a pass degree. 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 Program is in the process of being accredited by Engineers Australia.

Program Objectives and Graduate Attitudes
The BTech (Aero) (CDF) program is very similar to the first three years of the BE(Aero) (CDF) program. The BTech (Aero) (CDF) 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. The program extends the educational principles embodied in the BTech to a higher level of the degree. In the program, students will be exposed in first year to research methods in Engineering and will be offered significant extensions to the ideas and analysis performed in the standard degree program. This will allow them to undertake research projects, at the appropriate level, in their later years, thereby, more fully integrating research into the standard undergraduate degree. The individual projects undertaken in close association with academic staff on research topics of mutual interest underpin the program and give the students the ability to develop their full potential.

Academic Rules
1. UNSW Canberra Regulations for Undergraduate Students
   1.1 A student must comply with the Faculty Regulations for Undergraduate Students. In the event of a conflict, the rules for the Bachelor of Technology take precedence over the Faculty Regulations for Undergraduate Students.
   1.2 Students should read the CDFS Introductory pages for information related to the transfer in and out of the credit arrangements. See pages 40 and 41.

2. Program Rules:
   2.1 To qualify for the degree of Bachelor of Technology (CDF), a student shall normally be enrolled for a minimum of eight sessions and gain a minimum of 144 UOC (normally 24 UOC in each full time semester).

   2.2 A student 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.

   2.3 A student 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.
2.4 Before a student’s enrolment will be accepted for any course, the student must have completed the relevant pre-requisite courses shown in the Course Catalogue, except where the Course Authority for the appropriate course approves otherwise.

2.5 A student for enrolment for the degree of Bachelor of Technology (CDF) shall hold an Australian Tertiary Admission Rank (ATAR) or equivalent, of no less than 98.

2.6 To qualify for the degree of Bachelor of Technology (CDF), a student shall normally achieve a sessional Weighted Average Mean (WAM) of 85.

2.7 Normally, a student who does not comply with the requirements of Rule 2.7 (above) shall be transferred to student for the degree of Bachelor of Technology. Such review will occur at the end of each semester.

2.8 A student for the degree of Bachelor of Technology may, at the discretion of the Head of School, transfer to the degree of Bachelor of Technology (CDF) upon completion of 24 UOC with a WAM of 80 or greater in semester 1 or 2 of the Year One program.

2.9 Rule 2.8 above shall not normally be invoked for students with Potential Graduand status.

3. Practical Experience Requirements

3.1 Before graduation a student shall complete 40 days of approved practical engineering experience which must be done in blocks of at least 20 working days each where practicable and where each block must be in the service of a single provider. 20 days of appropriate service training may be counted towards this total.

Program Structure

The Bachelor of Technology (AeroEng) (CDF) 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 and courses taught by other Schools within UNSW Canberra. The specialisation in Aeronautical Engineering increases as the degree program progresses. A research component is taken each semester in years 1-3.

First Year program

ZEIT1500  Statics
ZEIT1502  Dynamics
ZEIT1901  Engineering Research 1A
ZEIT1902  Engineering Research 1B
ZPEM1303  Engineering Mathematics 1A
ZPEM1304  Engineering Mathematics 1B
ZPEM 1501 Physics 1A
ZPEM 1502 Physics 1B

Second Year program

ZEIT2500  Thermofluids
ZEIT2501  Mechanical and Electronic Design
ZEIT2502  Fundamentals of Flight
ZEIT2503  Fluid Mechanics
ZEIT2504  Mechanics of Solids
ZEIT2901  Engineering Research 2A
ZPEM2309  Engineering Mathematics 2A
ZPEM2310  Engineering Mathematics 2B

Third Year program

ZEIT3500  Engineering Structures
ZEIT3501  Engineering Materials
ZEIT3503  Aerodynamics
ZEIT3901  Engineering Research 3A
ZEIT3902  Engineering Research 3B
ZINT2100  Introduction to Cyber-Security

Plus 2 x General Education Courses
Engineering (CDF) Degrees

The aim of offering engineering degrees within UNSW Canberra 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 Chief of Defence Force Students Program offers the opportunity for students to be exposed to research in the first year of the program and to undertake research in a range of disciplines over years two and three, whilst still covering the engineering body of knowledge. All fourth year students in the program will produce a thesis on research carried out in that year.

The BE CDF Students Program is of four years duration, and is awarded as an honours degree. The engineering programs have been granted full accreditation 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 Engineering CDF Students programs are accredited 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 and their CDF Students Programs analogues. 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.

The Chief of Defence Force Students Program in Engineering offers the opportunity for students entering UNSW Canberra with a high Entrance Rank, and who maintain a high level of performance in their studies, to undertake research in a range of disciplines that will develop their critical thinking and independent research skills beyond that available in the standard Engineering program. In Year 1 of the program, students will be engaged with cohort activities so as to develop and maintain their interest and continuing involvement in the program via invited lectures, seminars, general reading and social events.

Commencing in Year 2, the research projects, each offered instead of one of the courses in the main degree stream, will be supervised by academic staff from the same or a closely related discipline as in the replaced course. Students in the research courses may work independently or as part of a team, depending on the nature of the project undertaken, though all students will submit individual assessment. Final assessment, due by the end of semester, will be based on a written paper and an oral presentation.

4475 Electrical Engineering (Honours) (CDF)

<table>
<thead>
<tr>
<th>Typical Duration:</th>
<th>4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum UOC for Award:</td>
<td>192 units of credit</td>
</tr>
<tr>
<td>Typical UOC per Semester:</td>
<td>24 units of credit</td>
</tr>
<tr>
<td>Related Program:</td>
<td>4471 Electrical Engineering (Hons)</td>
</tr>
</tbody>
</table>

Academic Rules

1. UNSW Canberra Regulations for Undergraduate Students

1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.

1.2 Students should read the CDFSP Introductory pages for information related to the transfer in and out of the credit arrangements. See pages 40 and 41.
2. Degree Requirements

2.1 The degree of Bachelor of Engineering (Honours) in Electrical Engineering shall be conferred as a Bachelor Honours degree at Level 8 in the AQF. Honours in recognition of meritorious performance may be awarded in the following categories:

- Honours Class I
- Honours Class II, Division I
- Honours Class II, Division II

Where candidates do not achieve Honours Class 1 or 2, the Class of Honours is not displayed.

2.1.1 The Class of Honours is calculated as follows:

- Honours Class 1: Honours WAM of at least 80.0 and Thesis Mark of at least 65
- Honours Class 2 Division 1: Honours WAM of at least 75.0 and Thesis Mark of at least 65
- Honours Class 2 Division 2: Honours WAM of at least 65.0 and Thesis Mark of at least 65

Courses will be weighted according to the following:

<table>
<thead>
<tr>
<th>Foundation Level 2 and 3 courses</th>
<th>Disciplinary Level 4 courses (not including final year projects)</th>
<th>Thesis Final year projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

2.2 To qualify for the degree of Bachelor of Engineering (Honours) (CDF) in Electrical Engineering, a student 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 semester).

2.3 A student 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 student 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 student’s enrolment will be accepted for any course, the student must have completed the relevant pre-requisite courses shown in the Course Catalogue, except where the Course Authority for the appropriate course approves otherwise.

2.6 A student for enrolment for the degree of Bachelor of Engineering (Honours) (CDF) in Electrical Engineering shall hold a Australian Tertiary Admission Rank (ATAR) or equivalent, of no less than 98.

2.7 A student for the degree of Bachelor of Engineering (Honours) in Electrical Engineering may, at the discretion of the Head of School, transfer to the degree of Bachelor of Engineering (Honours) (CDF) in Electrical Engineering upon completion of 24 units of credit with a WAM of 85 or greater in semesters 1 or 2 of the Year 1 program.

2.8 To qualify for the degree of Bachelor of Engineering (Honours) (CDF) in Electrical Engineering, a student shall usually maintain a sessional Weighted Average Mean (WAM) of 80.

2.9 Usually, a student who does not comply with the requirements of Rule 2.8 (above) shall be transferred to candidature for the degree of Bachelor of Engineering (Honours) in Electrical Engineering, although exceptions may be made at the discretion of the Head of School. Such review will occur at the end of each semester.

2.10 Rule 2.9 above shall not usually be invoked for students with Potential Graduand status.

3. Practical Experience Requirements

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.

Service Training and Practical Experience Requirements

Service training conducted during the degree program is recognised as partially satisfying practical experience requirements in the following ways:

- Naval Midshipmen, 30 days for experience gained at a defence establishment between second and third years. (Time at sea prior to arrival at UNSW Canberra at ADFA is not eligible for consideration.)
- Army Cadets, 30 days for the year spent at Royal Military College between third and fourth years.
- Air Force Cadets, 30 days for experience gained at a defence establishment between second and third years.
Program Structure
The Bachelor of Engineering (CDF) degree requires a prescribed program structure. 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. A research component is taken each semester in years 1-3. The full year thesis is worth twice the normal credit allocation in the final year. At the discretion of the Head of School, students may be allowed to enrol concurrently in courses from more than one year of the program.

First Year Program
ZEIT1101  Computational Problem Solving
ZEIT1102  Introduction to Programming
ZEIT1290  Electrical Engineering Research 1A
ZEIT1291  Electrical Engineering Research 1B
ZPEM1303  Engineering Mathematics 1A
ZPEM1304  Engineering Mathematics 1B
ZPEM1501  Physics 1A
ZPEM1502  Physics 1B

Second Year Program
ZEIT2103  Data Structures
ZEIT2207  Design of Electronic Circuits 2
ZEIT2901  Engineering Research 2A
ZEIT2902  Engineering Research 2B
ZINT2100  Intro to Cyber-Security
ZPEM2309  Engineering Mathematics 2A
ZPEM2310  Engineering Mathematics 2B
ZPEM2502  Physics 2B

Third Year Program
ZEIT3215  Signals and Systems
ZEIT3216  Design of Electronic Circuits 3
ZEIT3218  Communications Techniques
ZEIT3220  Engineering Electromagnetics
ZEIT3221  Digital Signal Processing and Control
ZEIT3502  Vibration and Control Engineering
ZEIT3901  Engineering Research 3A
ZEIT3902  Engineering Research 3B

Fourth Year Program
ZEIT4222  Systems Engineering
ZEIT4224  Power and Machines
ZEIT4901  Engineering Research 4A (12 UOC)
ZEIT4902  Engineering Research 4B (12 UOC)
Plus 2 x General Education Courses

4476 Aeronautical Engineering (Honours) (CDF)

Typical Duration: 4 years
Minimum UOC for Award: 192 units of credit
Typical UOC per Semester: 24 units of credit
Related Program: 4475 Aeronautical Engineering

Academic Rules
1. UNSW Canberra Regulations for Undergraduate Students
   1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.
   1.2 Students should read the CDFSP Introductory pages for information related to the transfer in and out of the credit arrangements. See pages 40 and 41.

2. Program Rules Dictionary
   2.1 The degree of Bachelor of Engineering (Honours) in Aeronautical Engineering shall be conferred as a Bachelor Honours degree at Level 8 in the AQF. Honours in recognition of meritorious performance may be awarded in the following categories:
      Honours Class I
      Honours Class II, Division I
      Honours Class II, Division II

      Where candidates do not achieve Honours Class 1 or 2, the Class of Honours is not displayed.
2.1.1 The Class of Honours is calculated as follows:

- Honours Class 1: Honours WAM of at least 80.0 and Thesis Mark of at least 65
- Honours Class 2 Division 1: Honours WAM of at least 75.0 and Thesis Mark of at least 65
- Honours Class 2 Division 2: Honours WAM of at least 65.0 and Thesis Mark of at least 65

Courses will be weighted according to the following:

<table>
<thead>
<tr>
<th>Foundation (Level 2 and 3 courses)</th>
<th>Disciplinary (Level 4 courses not including final year projects)</th>
<th>Thesis (Final year projects)</th>
</tr>
</thead>
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<tr>
<td>1</td>
<td>2</td>
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</tbody>
</table>

2.2 To qualify for the degree of Bachelor of Engineering (Honours) (CDF) in Aeronautical 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 prerequisite courses shown in the Course Catalogue, except where the Course Authority for the appropriate course approves otherwise.

2.6 A student for enrolment for the degree of Bachelor of Engineering (Honours) (CDF) in Aeronautical Engineering shall hold an Australian Tertiary Admission Rank (ATAR) or equivalent, of no less than 98.

2.7 A student for the degree of Bachelor of Engineering (Honours) in Aeronautical Engineering may, at the discretion of the Head of School, transfer to the degree of Bachelor of Engineering (Honours) (CDF) in Aeronautical Engineering upon completion of 24 units of credit with a WAM of 85 or greater in semesters 1 or 2 of the Year 1 program.

2.8 To qualify for the degree of Bachelor of Engineering (Honours) (CDF) in Aeronautical Engineering, a student shall usually maintain a sessional Weighted Average Mean (WAM) of 80.

2.9 Usually, a student who does not comply with the requirements of Rule 2.8 (above) shall be transferred to candidature for the degree of Bachelor of Engineering (Honours) in Aeronautical Engineering, although exceptions may be made at the discretion of the Head of School. Such review will occur at the end of each semester.

2.10 Rule 2.9 above shall not usually be invoked for students with Potential Graduand status.

3. Practical Experience Requirements

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.

Service Training and Practical Experience Requirements

Service training conducted during the degree program is recognised as partially satisfying practical experience requirements in the following ways:

- Naval Midshipmen, 30 days for experience gained at a defence establishment between second and third years. (Time at sea prior to arrival at UNSW Canberra at ADFA is not eligible for consideration.)
- Army Cadets, 30 days for the year spent at Royal Military College between third and fourth years.
- Air Force Cadets, 30 days for experience gained at a defence establishment between second and third years.

Program Structure

The Bachelor of Engineering (Honours) (CDF) in Aeronautical Engineering requires a prescribed program structure as determined by the engineering program chosen. Each year of the program comprises a number of School-based courses and courses taught by other Schools within UNSW Canberra. Specialisation in Aeronautical Engineering increases as the degree program progresses. A research component is taken each semester in years 1-3. The full year thesis is worth twice the normal credit allocation in the final year.
First Year Program
ZEIT1500  Statics
ZEIT1502  Dynamics
ZEIT1901  Engineering Research 1A
ZEIT1902  Engineering Research 1B
ZPEM1303  Engineering Mathematics 1A
ZPEM1304  Engineering Mathematics 1B
ZPEM1501  Physics 1A
ZPEM1502  Physics 1B

Second Year Program
ZEIT2500  Thermofluids
ZEIT2501  Mechanical and Electronic Design
ZEIT2502  Fundamentals of Flight
ZEIT2503  Fluid Mechanics
ZEIT2504  Mechanics of Solids
ZEIT2901  Engineering Research 2A
ZPEM2309  Engineering Mathematics 2A
ZPEM2310  Engineering Mathematics 2B

Third Year Program
ZEIT3500  Engineering Structures
ZEIT3501  Engineering Materials
ZEIT3503  Aerodynamics
ZEIT3504  Aircraft and Systems Design 1
ZEIT3505  Flight Dynamics and Aircraft Control
ZEIT3901  Engineering Research 3A
ZEIT3902  Engineering Research 3B
ZINT2100  Introduction to Cyber-Security

Fourth Year Program
ZEIT4502  Aircraft Design 2
ZEIT4503  Applied Thermodynamics and Propulsion
ZEIT4901  Engineering Research 4A (12UOC)
ZEIT4902  Engineering Research 4B (12UOC)

4477 Civil Engineering (Honours) (CDF)

Typical Duration: 4 years
Minimum UOC for Award: 192 units of credit
Typical UOC per Semester: 24 units of credit
Related Program: 4473 Civil Engineering

Academic Rules

1. Faculty Regulations for Undergraduate Students

1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.

1.2 Students should read the CDFSP Introductory pages for information related to the transfer in and out of the credit arrangements. See pages 40 and 41.

2. Degree Requirements

2.1 The degree of Bachelor of Engineering (Honours) in Civil Engineering shall be conferred as a Bachelor Honours degree at Level 8 in the AQF. Honours in recognition of meritorious performance may be awarded in the following categories:

Honours Class I
Honours Class II, Division I
Honours Class II, Division II

Where candidates do not achieve Honours Class 1 or 2, the Class of Honours is not displayed.

2.1.1 The Class of Honours is calculated as follows:

Honours Class 1: Honours WAM of at least 80.0 and Thesis Mark of at least 65
Honours Class 2 Division 1:Honours WAM of at least 75.0 and Thesis Mark of at least 65
Honours Class 2 Division 2:Honours WAM of at least 65.0 and Thesis Mark of at least 65
Courses will be weighted according to the following:

<table>
<thead>
<tr>
<th>Foundation (Level 2 and 3 courses)</th>
<th>Disciplinary (Level 4 courses not including final year projects)</th>
<th>Thesis (Final year projects)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

2.2 To qualify for the degree of Bachelor of Engineering (Honours) in Civil 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 prerequisite courses shown in the Course Catalogue, except where the Course Authority for the appropriate course approves otherwise.

2.6 A student for enrolment for the degree of Bachelor of Engineering (Honours) (CDF) in Civil Engineering shall hold an Australian Tertiary Admission Rank (ATAR) or equivalent, of no less than 98.

2.7 A student for the degree of Bachelor of Engineering (Honours) in Civil Engineering may, at the discretion of the Head of School, transfer to the degree of Bachelor of Engineering (Honours) (CDF) in Civil Engineering upon completion of 24 units of credit with a WAM of 85 or greater in semesters 1 or 2 of the Year 1 program.

2.8 To qualify for the degree of Bachelor of Engineering (Honours) (CDF) in Civil Engineering, a student shall usually maintain a sessional Weighted Average Mean (WAM) of 80.

2.9 Usually, a student who does not comply with the requirements of Rule 2.8 (above) shall be transferred to candidature for the degree of Bachelor of Engineering (Honours) in Civil Engineering, although exceptions may be made at the discretion of the Head of School. Such review will occur at the end of each semester.

2.10 Rule 2.9 above shall not usually be invoked for students with Potential Graduand status.

3. Practical Experience Requirements

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.

Service Training and Practical Experience Requirements

Service training conducted during the degree program is recognised as partially satisfying practical experience requirements in the following ways:

Naval Midshipmen, 30 days for experience gained at a defence establishment between second and third years. (Time at sea prior to arrival at UNSW Canberra at ADFA is not eligible for consideration.)

Army Cadets, 30 days for the year spent at Royal Military College between third and fourth years.

Air Force Cadets, 30 days for experience gained at a defence establishment between second and third years.

Program Structure

The Bachelor of Engineering (Honours) (CDF) in Civil Engineering requires a prescribed program structure as determined by the engineering program chosen. Each year of the program comprises a number of School-based courses and courses taught by other Schools within UNSW Canberra. Specialisation in Civil Engineering increases as the degree program progresses. A research component is taken each semester in years 1-3. The full year thesis is worth twice the normal credit allocation in the final year.

First Year Program

ZEIT1500 Statics
ZEIT1502 Dynamics
ZEIT1600 Civil Engineering Research 1A
ZEIT1902 Engineering Research 1B
ZPEM1303 Engineering Mathematics 1A
ZPEM1304 Engineering Mathematics 1B
ZPEM1501 Physics 1A
ZPEM1502 Physics 1B
Second Year Program
ZEIT2500 Thermofluids
ZEIT2504 Mechanics of Solids
ZEIT2601 Soil Mechanics and Engineering Geology
ZEIT2602 Hydraulic Engineering
ZEIT2901 Engineering Research 2A
ZINT2100 Introduction to Cyber-Security
ZPEM2309 Engineering Mathematics 2A
ZPEM2310 Engineering Mathematics 2B

Third Year Program
ZEIT3501 Engineering Materials
ZEIT3600 Structural Analysis 1
ZEIT3601 Environmental Engineering
ZEIT3602 Geotechnical Design
ZEIT3603 Design Steel and Timber Structures
ZEIT3604 Project Management Civil Engineering
ZEIT3901 Engineering Research 3A
ZEIT3902 Engineering Research 3B

Fourth Year Program
ZEIT4901 Engineering Research 4A (12 UOC)
ZEIT4902 Engineering Research 4B (12 UOC)
2 x General Education Courses
2 x Technical Elective courses from the list below

Technical Elective Courses
ZEIT4602 Design of Concrete Structures
ZEIT4603 Finite Element Methods
ZEIT4604 Hydrology and Environmental Engineering Practice
ZEIT4605 Foundation and Pavement Engineering

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4478 Mechanical Engineering (Hons) (CDF)

Typical Duration: 4 years
Minimum UOC for Award: 192 units of credit
Typical UOC per Semester: 24 units of credit
Related Program: 4474 Mechanical Engineering (Honours)

Academic Rules

1. UNSW Canberra Regulations for Undergraduate Students

1.1 These regulations apply to all undergraduate degrees and are to be used in conjunction with Academic Rules and Program Information. All rules in this Handbook apply to each student who enters an undergraduate program in 2016. The rules remain applicable until the student exits their program, either by discontinuation or graduation. Students who entered a program in another year should consult the rules and regulations for that year.

1.2 Students should read the CDFSP Introductory pages for information related to the transfer in and out of the credit arrangements. See pages 40 and 41.

2. Program Rules:

2.1 The degree of Bachelor of Engineering (Honours) in Mechanical Engineering shall be conferred as a Bachelor Honours degree at Level 8 in the AQF. Honours in recognition of meritorious performance may be awarded in the following categories:

Honours Class I
Honours Class II, Division I
Honours Class II, Division II

Where candidates do not achieve Honours Class 1 or 2, the Class of Honours is not displayed.

2.1.1 The Class of Honours is calculated as follows:

Honours Class 1: Honours WAM of at least 80.0 and Thesis Mark of at least 65
Honours Class 2 Division 1: Honours WAM of at least 75.0 and Thesis Mark of at least 65
Honours Class 2 Division 2: Honours WAM of at least 65.0 and Thesis Mark of at least 65
Courses will be weighted according to the following:

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<th>Thesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2 and 3</td>
<td>Level 4 courses</td>
<td>Final year projects</td>
</tr>
<tr>
<td>1</td>
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<td>3</td>
</tr>
</tbody>
</table>

2.2 To qualify for the degree of Bachelor of Engineering (Honours) (CDF) in Mechanical 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 prerequisite courses shown in the Course Catalogue, except where the Course Authority for the appropriate course approves otherwise.

2.6 A student for enrolment for the degree of Bachelor of Engineering (Honours) (CDF) in Mechanical Engineering shall hold an Australian Tertiary Admission Rank (ATAR) or equivalent, of no less than 98.

2.7 A student for the degree of Bachelor of Engineering (Honours) in Mechanical Engineering may, at the discretion of the Head of School, transfer to the degree of Bachelor of Engineering (Honours) (CDF) in Mechanical Engineering upon completion of 24 units of credit with a WAM of 85 or greater in semesters 1 or 2 of the Year 1 program.

2.8 To qualify for the degree of Bachelor of Engineering (Honours) (CDF) in Mechanical Engineering, a student shall usually maintain a sessional Weighted Average Mean (WAM) of 80.

2.9 Usually, a student who does not comply with the requirements of Rule 2.8 (above) shall be transferred to candidature for the degree of Bachelor of Engineering (Honours) in Mechanical Engineering, although exceptions may be made at the discretion of the Head of School. Such review will occur at the end of each semester.

2.10 Rule 2.9 above shall not usually be invoked for students with Potential Graduand status.

3. Practical Experience Requirements

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.

Service Training and Practical Experience Requirements

Service training conducted during the degree program is recognised as partially satisfying practical experience requirements in the following ways:

Naval Midshipmen, 30 days for experience gained at a defence establishment between second and third years. (Time at sea prior to arrival at UNSW Canberra at ADFA is not eligible for consideration.)

Army Cadets, 30 days for the year spent at Royal Military College between third and fourth years.

Air Force Cadets, 30 days for experience gained at a defence establishment between second and third years.

Program Structure

The Bachelor of Engineering (CDF) 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 and courses taught by other Schools within UNSW Canberra. The specialisation in Mechanical Engineering increases as the degree program progresses. A research component is taken each semester in years 1-3. The full year thesis is worth twice the normal credit allocation in the final year.
First Year Program
- ZEIT1500 Statics
- ZEIT1502 Dynamics
- ZEIT1901 Engineering Research 1A
- ZEIT1902 Engineering Research 1B
- ZPEM1303 Engineering Mathematics 1A
- ZPEM1304 Engineering Mathematics 1B
- ZPEM1501 Physics 1A
- ZPEM1502 Physics 1B

Second Year Program
- ZEIT2500 Thermofluids
- ZEIT2501 Mechanical and Electronic Design
- ZEIT2503 Fluid Mechanics
- ZEIT2504 Mechanics of Solids
- ZEIT2700 Mechanics of Machines
- ZEIT2901 Engineering Research 2A
- ZPEM2309 Engineering Mathematics 2A
- ZPEM2310 Engineering Mathematics 2B

Third Year Program
- ZEIT3500 Engineering Structures
- ZEIT3501 Engineering Materials
- ZEIT3502 Vibration and Control Engineering
- ZEIT3700 Mechanical Design 1
- ZEIT3701 Heat Transfer and Refrigeration
- ZEIT3901 Engineering Research 3A
- ZEIT3902 Engineering Research 3B
- And 1 x General Education Course

Fourth Year Program
- ZEIT4505 Mech & Aero Eng Mgmt
- ZEIT4700 Mechanical Design 2
- ZEIT4901 Engineering Research 4A (12 UOC)
- ZEIT4902 Engineering Research 4B (12 UOC)
- ZINT2100 Introduction to Cyber-Security
- And 1 x General Education Course
Honours Programs

4511 Arts (Honours)

Typical Duration: 1 year
Minimum UOC for Award: 48 units of credit
Typical UOC per Semester: 24 units of credit
Related Programs: 4400 Arts, 4512 Business (Honours), 4513 Science (Honours)

Program Description
The Bachelor of Arts (Honours) is a one-year program following on from a three year full-time equivalent pass degree.

The purpose of BA Honours degree is to enable students who have performed well at undergraduate level to deepen their knowledge of approaches, perspectives and traditions in their chosen discipline and undertake a significant research project.

Honours is a means for connecting undergraduate study with supervised independent research by consolidating and extending work completed in the undergraduate program and providing an academic foundation for students continuing on to a Masters by research or a PhD.

Program Objectives and Graduate Attributes
At the end of the program, students should have acquired all of the following learning outcomes:

1. An advanced understanding of one or more of the theoretical underpinnings of the particular honours discipline;

2. The understanding and application of research methodologies appropriate to the particular discipline; and

3. The capacity to undertake independent research.

Program Structure
A student must obtain, usually over one year of study, a minimum of 48 units of credit in an area of study approved by the Head of School.

The coursework component will normally consist of 18 UOC of semester-based courses. The research thesis component will normally consist of 30 UOC.

Honours will be offered in the following disciplines:

- English and Media Studies
- Human Geography
- History
- International and Political Studies

Students wishing to undertake Honours in Business should apply for admission to the Bachelor of Business (Hons) (Program Code 4512).

Students wishing to undertake Honours in Geography should apply for admission to the Bachelor of Science (Hons) (Program Code 4513).

Honours Courses
ZHSS4001 Arts Honours Research 1
ZHSS4002 Arts Honours Research 2
ZHSS4003 Arts Honours Special Topic 1
ZHSS4004 Arts Honours Special Topic 2
ZHSS4005 History Honours Research 1
ZHSS4006 History Honours Research 2
ZHSS4007 History Honours Special Topic 1
ZHSS4008 History Honours Special Topic 2
Academic Rules
Rules governing the award of the degree of Bachelor of Arts with Honours.

1. Admission Requirements
   To apply for admission to the award of the degree at Honours level, an applicant must have:
   a) successfully completed a three year BA with a major in the relevant honours discipline at UNSW Canberra at ADFA; or
   b) gained a BA degree from another approved institution; and
   c) achieved at least a credit average (65%) across the entire undergraduate program including a credit average over the Level III courses in the discipline in which honours is proposed.

2. Calculation of Honours
   The final grade will be determined by the addition of the marks for the coursework component to the mark awarded for the thesis component.
   The weighting for the class of Honours is WAM-based.
   The thesis component will be examined by two examiners, neither of whom will be the thesis supervisor.

3. Class of Honours
   The Honours degree is awarded in three classes (Class 1, Class 2 in two Divisions, and Class 3) as follows:
   Honours Class 1: 85 or greater;
   Honours Class 2 Division 1: 75 to 84;
   Honours Class 2 Division 2: 65 to 74;
   Honours Class 3 or Pass: 50 to 64

4. Pathways
   Students who complete an Honours program and achieve an Honours Class 1 are well placed to apply for higher degree research (a Doctor of Philosophy (PhD) or Masters by Research (MA)) and scholarships such as the Australian Postgraduate Award (APA). Further details on career opportunities for students who complete an Honours degree can be obtained from the School.

4512 Business (Honours)
Typical Duration: 1 year
Minimum UOC for Award: 48 units of credit
Typical UOC per Semester: 24 units of credit
Related Programs: 4511 Arts (Honours), 4513 Science (Honours), 4514 Information Technology (Honours), 4405 Business

Program Description
The Bachelor of Business (Honours) is a one-year program following on from a three year full-time equivalent pass degree.

The purpose of Business (Honours) degree is to enable students who have performed well at undergraduate level to deepen their knowledge of approaches, perspectives and traditions in their chosen scientific discipline and undertake a significant research project.

Honours is a means for connecting undergraduate study with supervised independent research by consolidating and extending work completed in the undergraduate program and providing an academic foundation for students continuing on to a Masters by research or a PhD.

Program Objectives and Graduate Attributes
At the end of the program, students should have acquired all of the following learning outcomes, the ability to:

- Apply advanced knowledge of the principles and concepts in one or more disciplines in business and knowledge of research principles and methods appropriate to the area of business and related disciplines.
- Apply cognitive skills to review, analyse, communicate and synthesise business knowledge to identify and provide solutions to complex problems with intellectual independence; and
- Demonstrate the application of business knowledge and skills to plan and execute project work and/or a piece of research and scholarship in a business area with some independence.
Program Structure
A student must obtain, usually over one year of study, a minimum of 48 units of credit in an area of study approved by the Head of School. The coursework component will consist of two (12 UOC) semester-based courses. The research component will consist of 36 UOC thesis.

The coursework component of this program will consist of the following 6 UOC courses:
ZBUS4001 Literature Review
ZBUS4002 Research Methods (Honours)

Students must successfully complete both courses to be eligible to graduate from this program.

Thesis Courses
ZBUS4101 Business Research 1 (Honours)
ZBUS4102 Business Research 2 (Honours)

Academic Rules
Rules governing the award of the degree of Bachelor of Business with Honours.

1. Admission Requirements
To enrol for the award of the degree at Honours level, a student must have:
   a) completed a relevant pass-degree program, such as a Business or Arts degree; or -
   b) completed an equivalent degree from an approved institution; and -
   c) 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.

2. Calculation of Honours
The final grade will be determined by the addition of the marks for the coursework component to the mark awarded for the thesis component.

The weighting for the class of Honours is WAM-based.

The thesis component will be examined by two examiners, neither of whom will be the thesis supervisor.

3. Class of Honours
The Honours degree is awarded in three classes (Class 1, Class 2 in two Divisions, and Class 3) as follows:
Honours Class 1: 85 or greater;
Honours Class 2 Division 1: 75 to 84;
Honours Class 2 Division 2: 65 to 74;
Honours Class 3 or Pass: 50 to 64

4. Pathways
Students who complete an Honours program and achieve an Honours Class 1 are well placed to apply for higher degree research (a Doctor of Philosophy (PhD) or Masters by Research (MSc)) and scholarships such as the Australian Postgraduate Award (APA). Further details on career opportunities for students who complete an Honours degree can be obtained from the School.

4513 Science (Honours)
Typical Duration: 1 year
Minimum UOC for Award: 48 units of credit
Typical UOC per Semester: 24 units of credit
Related Programs:
4410 Science,
4511 Arts (Honours),
4514 Information Technology (Honours)

Program Description
The Bachelor of Science (Honours) is a one-year program following on from a three year full-time equivalent pass degree.

The purpose of Honours is to enable students who have performed well at undergraduate level to deepen their knowledge of approaches, perspectives and traditions in their chosen scientific discipline and undertake a significant research project. Honours is a means for connecting undergraduate study with supervised independent research by consolidating and extending work completed in the undergraduate program. As part of the honours program students will be expected to complete a significant independent research project and may be expected to complete coursework. In addition to conducting research and coursework students will generally also be expected to undertake Occupational Health & Safety (OH&S) training, attend and present seminars, write a literature review, and write a thesis.
Honours students who are RAN midshipmen or RAAF officer cadets continue with this program at UNSW Canberra at ADFA after completion of their three year BSc program and then complete their Honours program at the end of the fourth year. Army officer cadets, however, at the end of the third year BSc program transfer to the Royal Military College, Duntroon for a year of military training to be commissioned as lieutenants. Those who qualify to undertake their Honours program return to the Academy to complete their program for a year.

Program Objectives and Graduate Attributes

A Bachelor of Science (Honours) program will develop students’ lifetime skills including creativity, problem-solving ability, critical thinking and communication skills that will be useful not only in a scientific environment but in all professions. It will prepare students to deal with technical and management issues that will often require scientific knowledge and the intellectual and practical problem-solving skills developed through studies in physical, environmental and mathematical sciences, and information technology. The key focus of the Honours year is to equip students with research and problem solving skills relevant to their discipline.

At the end of the program, students should have acquired all of the following learning outcomes:

– Construct a research project that demonstrates technical skills in research and design; and
– Demonstrate coherent and advanced knowledge of the underlying principles and concepts in one or more disciplines, and knowledge of research principles and methods.

Program Structure

A student must obtain, usually 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.

The breakdown between research and coursework components is:-

i) 25% coursework. This consists of two x 6 UOC courses, worth 12.5% each (total 25%). They could be undertaken by one course in each semester, or both could be undertaken in Semester 1;

and

ii) 75% Research Project, including a thesis. The written component of the thesis should not exceed 25,000 words.

The following Science discipline areas are available in the Bachelor of Science (Honours):

– Aviation
– Chemistry
– Geography
– Mathematics and Statistics
– Oceanography
– Physics

Students wishing to undertake Honours in Human Geography should apply for admission to the Bachelor of Arts (Hons) (Program Code 4511).

Students wishing to undertake Honours in Computer Science, Information Systems or Operations Research should apply for admission to the Bachelor of Information Technology (Hons) (Program Code 4514).
Academic Rules

1. Admission Requirements

To enrol for the award of the degree at Honours level, a student must have:

a) completed a relevant pass-degree program; or

b) completed an equivalent degree from an approved institution; and

c) 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.

2. Honours Grading

At the completion of their Honours program students will be awarded an Honours grading as follows:

Honours Class 1: WAM 85 or greater;
Honours Class 2 Division 1: WAM 75 to 84;
Honours Class 2 Division 2: WAM 65 to 74;
Honours Class 3 or Pass: WAM 50 to 64.

The weighting for the class of Honours is WAM-based.

Please note that only courses completed as part of the Honours program will be included within an Honours calculation. Honours marks and gradings will be scrutinized at a School level as either part of an Honours Committee or School Assessment Committee to ensure consistency across sub-disciplines and cohorts. The College will also review these marks and grades prior to the release of results at the Assessment Review Group meeting.

3. Pathways

Students who complete an Honours program and achieve an Honours Class 1 are well placed to apply for higher degree research (a Doctor of Philosophy (PhD) or Masters by Research (MSc)) and scholarships such as the Australian Postgraduate Award (APA). Further details on career opportunities for students who complete an Honours degree can be obtained from the School.

4514 Information Technology (Honours)

Typical Duration: 1 year

Minimum UOC for Award: 48 units of credit

Typical UOC per Semester: 24 units of credit

Related Programs: 2925 Computer Science, 1885 Computer Science, 1743 Information Technology, 9380 Information Technology.

Program Description

The Bachelor of Information Technology (Honours) is a one-year program following on from a three year full-time equivalent pass degree.

The Bachelor of Information Technology (Honours) degree is intended for students wishing to deepen their knowledge and develop more advanced, independent research skills. The student will undertake courses that will extend their knowledge in their chosen topic area as well as enhancing their research skills. A major project will be undertaken that will result in a thesis dissertation of between 20,000 and 35,000 words. The dissertation may be larger or smaller depending on the project, the production of a specific information technology artefact and discussion with the Honours supervisor.

Program Objectives and Graduate Attributes

At the end of the program, students should have acquired all of the following learning outcomes:

i) Demonstrate coherent and advanced knowledge of the underlying principles and concepts in one or more disciplines, and knowledge of research principles and methods;

ii) Construct a research project that demonstrates technical skills in research and design;

iii) Construct a research project that demonstrates critical thinking and judgment in developing new understanding;

iv) Identify and formulate solutions to complex problems with intellectual independence;
v) Demonstrate cognitive skills that review, analyse, consolidate, synthesize and adapt knowledge in diverse contexts;

vi) Identify and formulate solutions to complex problems with intellectual independence demonstrating judgment in scholarship;

vii) Demonstrate responsibility and accountability for own learning and practice and in collaboration with others within broad parameters; and

viii) Demonstrate communication skills to present a clear and coherent exposition of knowledge and ideas to a variety of audiences.

Program Structure
A student must obtain, usually over one year of study, a minimum of 48 units of credit approved by the Head of School. The course work component will normally consist of four semester-based courses. The thesis component will be examined by two examiners, neither of whom will be the thesis supervisor.

Honours will be offered in the following disciplines:
- Computer Science
- Information Systems
- Operations Research

Academic Rules
Rules governing the award of the degree of Bachelor of Information Technology with Honours.

1. Admission Requirements

To enrol for the award of the degree at Honours level, a student must:

i) complete a relevant information technology pass-degree program requirements; or

ii) gain an equivalent approved award from elsewhere; and

iii) have achieved at least a credit average (65) across the entire undergraduate program including a credit average over the Level III core IT courses or equivalent courses.

2. Calculation of Honours

i) The Honours year will consist of a combination of course work contributing 50% to the total final mark and supervised academic research exercise / thesis contributing the remaining 50%.

ii) The final grade will be determined by the addition of the marks for the coursework component to the mark awarded for the thesis component.

3. Class of Honours

The Honours degree is awarded in three classes (Class 1, Class 2 in two Divisions, and Class 3) as follows:

Honours Class 1: mark of 85 or greater;
Honours Class 2 Division 1: mark from 75 to 84;
Honours Class 2 Division 2: mark from 65 to 74;
Honours Class 3 or Pass: mark from 50 to 64.

4. Pathways

Students who complete an Honours program and achieve an Honours Class 1 are well placed to apply for higher degree research (a Doctor of Philosophy (PhD) or a professional doctorate in Information Technology (DIT) or a research Masters (MSc) and scholarships such as the Australian Postgraduate Award (APA). Further details on career opportunities for students who complete an Honours degree can be obtained from the School.
Streams are also known as a major in the BA and BSc undergraduate degrees. It is an area of concentration defined by a group of courses which must be completed.

Students should refer to their BA, BA (CDF) or BSc, BSc (CDF) degree structures when considering how to select courses within their majors.

Students should refer to the BA (Hons), BBus (Hons), BIT (Hons) and BSc (Hons) program information on the online UNSW Handbook when selecting courses within their Honours disciplines.

Other Programs

Students in all other degrees may select courses from these disciplines and count them as free elective courses. Prerequisite and timetabling requirements must be met.

Aviation

School of Engineering and Information Technology
Programs Available: 4410, 4463

Stream Summary

The Aviation major provides the student with a deep understanding of the various technological and human systems that contribute to the safe and efficient operation of aircraft and the aviation environment. A key element in this major is the focus on the role of people as key components in a technologically advanced and complex aviation environment. There is a particular emphasis on the role of human operators (e.g. pilots, air combat officers and air traffic controllers) in aviation in infrastructure and safety management systems.

The Aviation major is designed for potential pilots, air combat officers and air traffic controllers entering the Australian Defence Force.

Stream Structure

For the recommended double major combinations involving Aviation and the corresponding study plans please see https://www.unsw.adfa.edu.au/degree/undergraduate/defence/science

A major sequence in Aviation for students entering the BSc comprises a total of 48 UOC, which comprises the following:

Select the following two (12 UOC) level I courses:
ZPEM1501 Physics 1A
ZPEM1502 Physics 1B

Note: Level I Mathematics (ZPEM1301 and ZPEM1302 or ZPEM1303 and ZPEM1304) is a prerequisite for some level II and III Aviation courses. For students doing a double major in Physics and Aviation, the two level I Mathematics units are to be part of the Aviation major since the level I Physics units are counted towards the Physics major.

Select three courses at level II:
ZEIT2502 Fundamentals of Flight
ZEIT2800 Introduction to Aviation
ZEIT2802 Aircraft Systems for Aviators
ZEIT2803 Aviation Safety
ZPEM2302 Mathematics Tools for Science

Note: Students must take at least one of the Level II courses ZEIT2502 Fundamentals of Flight or ZPEM2302 Mathematics Tools for Science for their Aviation major.

Select three courses at level III:
ZEIT3801 Advanced Aviation Safety
ZEIT3803 Air Traffic Management
ZEIT3804 Behavioural Science Project
ZEIT3805 Airport Operations and Systems
ZPEM3204 Environmental Hazards

Students wishing to do ZEIT3804 Behavioural Science Project in their third year must take ZPEM2302 Mathematics Tools for Science in their second year.

Honours

Students must have achieved at least a credit average (65) across the entire undergraduate program including a credit average over the Level III courses or equivalent courses.
Business

School of Business

Programs Available: 4400, 4461

Stream Summary
Business is about managing human, financial, physical and information resources to achieve the best outcomes for an organisation in its business environment. Effective business decision making requires both an internal focus on people, operations and finances, and a strategic focus on developments in the economic and social environment – markets, ethics, the law and government policy.

Stream Structure
A major sequence in Business comprises a minimum of two (12 UOC) of the following Level I courses:

- ZBUS1101 Organisational Behaviour
- ZBUS1102 Business Economics
- ZBUS1103 Introduction to Accounting

Plus 18 UOC from the following Level II courses:

- ZBUS2101 Business Law
- ZBUS2202 Australia and the World Economy
- ZBUS2207 Managing the Public Sector
- ZBUS2302 Leadership
- ZBUS2820 International Business
- ZEI2001 Managing Information Systems
- ZHSS2601 Introductory Business Ethics

Plus 18 UOC from the following Level III courses:

- ZBUS2401 Financial Management
- ZBUS3102 Project Management
- ZBUS3103 Human Resource Management
- ZBUS3203 The Making of Economic Policy
- ZBUS3303 Logistics Management

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

Chemistry

School of Physical, Environmental and Mathematical Sciences

Programs Available: 4410, 4463

Stream Summary
Chemistry is a foundation science of civilisation and is central to modern technology and medicine. Many fields of science involve an understanding and/or application of chemistry or materials derived from chemical processes. Since the late 20th century six notable Australians have won Nobel prizes for their contributions to science, which involved significant aspects of chemistry. These include Sir John Cornforth (1975); and for Medicine with a substantial chemistry component - Florey (1945), - MacFarlane Burnett (1960), - Eccles (1963) and - Doherty (1996). W.H. Bragg, W.L. Bragg won the prize in Physics (1915), which led to major advances in chemistry, biology and material science.

Chemistry has prominence in the modern world via applications involving nanotechnologies and popular compact electronic devices of everyday use. However, there are many more chemical uses that support modern society and occupy many roles without being noticed or even pondered.

Chemistry is science at the molecular level. 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 UNSW Canberra Chemistry majors have found employment.

Chemistry is divided into several sub-fields. The School of PEMS has strengths in Physical and Theoretical Chemistry as well as Inorganic and Organic Chemistry. Within each of these sub-fields there are specialist fields of laser spectroscopy, biological chemistry, supramolecular chemistry, explosives and molecular design. As well as teaching, academic staff 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.
Stream Structure
For the recommended double major combinations involving Chemistry and the corresponding study plans please see https://www.unsw.adfa.edu.au/degree/undergraduate/defence/science

A major sequence in Chemistry comprises the following two Level I courses:
ZPEM1101 Chemistry 1A
ZPEM1102 Chemistry 1B

Plus the following Level II courses:
ZPEM2102 Organic Chemistry 2
ZPEM2113 Inorganic Chemistry and Spectroscopy
ZPEM2114 Biological Chemistry

Plus the following Level III courses:
ZPEM3103 Applications of Quantum Theory
ZPEM3107 Explosives
ZPEM3121 Supramolecular Chemistry

Computer Science
School of Engineering and Information Technology
Programs Available: 4410, 4463

Stream Summary
Computer Science is one of three disciplines of study offered in the field of Information Technology. 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.

Stream Structure
For the recommended double major combinations involving Computer Science and Mathematics and the corresponding study plans please see https://www.unsw.adfa.edu.au/degree/undergraduate/defence/science

A Major sequence in Computer Science comprises two Level I courses:
ZEIT1101 Computational Problem Solving
ZEIT1102 Introduction to Programming

Plus 2 specified Level II courses in Computer Science:
ZEIT2102 Computer Technology
ZEIT2103 Data Structures

Plus 4 specified Level III courses:
ZEIT3101 IT Project 2
ZEIT3113 Computer Languages and Algorithms
ZEIT3114 Internetworking
ZEIT3118 IT Project 1

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.

Full time (24 UOC a semester for one year)
ZEIT4103 Computer Science 4 (Hons) F/T (24 UOC)

Part time (12 UOC a semester for two years)
ZEIT4104 Computer Science 4 (Hons) P/T (12 UOC)

Combined Honours
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.

Full time (24 UOC a semester for one year)
ZEIT4101 Computer Science Honours Special Topic 1 (12 UOC)

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

School of Humanities and Social Sciences
Programs Available: 4400, 4461

Stream Summary
The first-year courses in English and Media Studies deal with various literary genres and with the experience of war in literature and film. After first year, students in English and Media Studies are able to choose freely from a range of second and third year courses, including some devoted to chronological and introductory surveys of major periods of English, American and Australian writing.

Stream Structure
A Major sequence in English and Media Studies comprises two Level I courses:
ZHSS1101 English 1A
ZHSS1102 English 1B

Plus 36 UOC which must be from Level II and III courses, with at least 18 UOC from Level III:

Level II courses:
ZHSS2104 Studies in the Media
ZHSS2108 American Literature
ZHSS2120 Heroism, Banditry and Manhood
ZHSS2133 Australian Literature
ZHSS2600 Practical Ethics

Level III courses:
ZHSS3105 Modernism and Postmodernism
ZHSS3109 Romanticism and Revolution
ZHSS3121 Classic Literary Texts
ZHSS3138 War Literature and Film
ZHSS3139 Reading Theory
ZHSS3140 Literatures of the World

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 Honours in English and Media Studies is at the discretion of the Head of School. Interested students should contact the Honours Program Coordinator within HASS.

Geography

School of Physical, Environmental and Mathematical Sciences
Programs Available: 4400, 4410, 4461, 4463

Stream Summary
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.

Stream 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.

Level II Geography
In Level II Geography, students can begin to specialise in the systematic branches of the discipline, either human or physical geography, or, take courses that integrate both human and physical geography or focus on geographic methods.

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 or Geography Discipline Coordinator.

For the recommended double major combinations involving Geography in the BSc program and the corresponding study plans please see https://www.unsw.adfa.edu.au/degree/undergraduate/defence/science
A major sequence in Geography comprises two Level I courses:
ZPEM1201 Geography 1A
ZPEM1202 Geography 1B

Plus 18 UOC from the following Level II courses:
ZPEM2202 Ecological Biogeography
ZPEM2207 Social Geography
ZPEM2209 Development Geography
ZPEM2212 Managing Environmental Change
ZPEM2213 GIS & RS

Plus 18 UOC from the following Level III courses:
ZPEM3202 Cultural Geography
ZPEM3203 Conservation Biogeography
ZPEM3204 Environmental Hazards
ZPEM3208 Geographic Research Methods
ZPEM3222 Coastal Geomorphology

To complete a major in Geography, students must complete Geography 1A, Geography 1B, at least one Level II course that includes a residential field school (currently ZPEM2202 Ecological Biogeography or ZPEM2207 Social Geography) and a Level III Geography course that includes a residential field school (currently ZPEM3208 Geographic Research Methods).

In 2016 third year students undertaking a Geography Major must ensure that they have a total of 36 UOC from Levels II and III combined.

Stream Structure
The major in History begins with Level I History. Students have maximum flexibility in completing the major. They are able to select their own combinations of single-session courses (Level II or III), regardless of their year level.

The two first-year courses consist of subjects focused on the key themes in global history of trade, diplomacy and war from the twelfth to the eighteenth centuries. 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.

A major in History comprises of two Level I courses:
ZHSS1201 History 1A
ZHSS1202 History 1B

Plus 36 UOC which must be from Level II and III courses, with at least 18 UOC at Level III

Level II Courses:
ZHSS2201 East Asia: Between Tradition and Modernity
ZHSS2204 Modern Navies and Sea Power
ZHSS2206 Social Change in East Asia
ZHSS2209 The Making of Contemporary Society
ZHSS2210 The Origins of Modern War
ZHSS2217 Genocide
ZHSS2221 Ireland and Britain: 1798-1998
ZHSS2223 India: from the Mughals to the Mall
ZHSS2224 The Road to Ruin: Germany
ZHSS2229 Russian History
ZHSS2230 Contemporary African History
ZHSS2231 US Military History
ZHSS2232 British Empire at War
ZHSS2233 Assault from the Sea

Level III Courses:
ZHSS3201 Preliminary Honours History
ZHSS3202 Methodology Research and Writing
ZHSS3211 The Second World War
ZHSS3212 Australian Military History
ZHSS3228 Insurgency/Counterinsurgency
ZHSS3231 First World War
ZHSS3233 Naval History and Sea Power in the 20th Century
ZHSS3234 Nazi Germany
ZHSS3235 Britain 1776-1877
ZHSS3236 After the Empire
Students may also include one or more of the following courses as part of a History major if they obtain permission from the Head of School.

ZHSS2503  State Systems of Pre-Colonial SE Asia  
ZHSS3402  Political Cultures in Asia & Pacific

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 Honours in History is at the discretion of the Head of School. Interested students should contact the Honours Program Coordinator within HASS.

Indonesian Studies

School of Humanities and Social Sciences

Programs Available: 4400, 4461

Stream Summary

Two streams of Indonesian language and culture are available at UNSW Canberra as detailed under the options for constructing a major in Indonesian. In exceptional circumstances, and with permission from the relevant Head of School, students may be able to make variations in the structure of a major in Indonesian.

Note. Native speakers of Indonesian or Malay will not be permitted to enrol in Indonesian.

Stream Structure

A major in Indonesian for students entering the BA or BSc must have a minimum of 48 UOC which comprises:

For students who have completed Year 12 Indonesian or equivalent:

Two (12 UOC) Level I courses:

ZHSS1303 Intermediate Indonesian 1C
ZHSS1304 Intermediate Indonesian 1D

Plus 36 UOC that must be from Level II and Level III courses, with at least 18 UOC at Level III:

ZHSS2303 Advanced Indonesian 2C
ZHSS2304 Advanced Indonesian 2D
ZHSS2504 Popular Culture in Indonesia
ZHSS2506 Indonesian Peripheries
ZHSS3501 Islam and Challenges of Modernity

ZHSS3505  Class and Gender in Indonesia

For students who have little or no prior knowledge of Indonesian:

Two (12 UOC) Level I courses:

ZHSS1301 Indonesian 1A
ZHSS1302 Indonesian 1B

Plus 36 UOC that must be from Level II and III courses of which at least 18 UOC must be at Level III:

ZHSS2301 Indonesian 2A
ZHSS2302 Indonesian 2B
ZHSS2504 Popular Culture in Indonesia
ZHSS2506 Indonesian Peripheries
ZHSS3301 Indonesian 3A
ZHSS3302 Indonesian 3B
ZHSS3501 Islam and Challenges of Modernity
ZHSS3505  Class and Gender in Indonesia

Students may also include one of the following courses as part of the Indonesian Studies Major

ZHSS2416  The Politics of South East Asia
ZHSS2503  State Systems in Pre Colonial SE Asia

Honours

Honours is not currently available in Indonesian Studies.

Information Systems

School of Engineering and Information Technology

Programs Available: 4410, 4461, 4463

Stream Summary

Information Systems is one of three disciplines of study offered in the field of Information Technology. It can be studied as either an Arts or Science discipline. 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.

For the recommended double major combinations involving Information Systems and Geography in the BSc program and the corresponding study plans please see https://www.unsw.adfa.edu.au/degree/undergraduate/defence/science
Stream Structure

A major sequence in Information Systems comprises of two Level I courses:

ZEIT1301  Introduction to the IT Profession
ZEIT1302  Introduction to Systems Thinking

and 2 specified Level II courses in Computer Science:

ZEIT2301  Solution Design
ZEIT2306  Service Design

Plus 4 specified Level III courses:

ZEIT3101  IT Project 2
ZEIT3110  Service Management
ZEIT3118  IT Project 1
ZEIT3302  Software Project Management

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.

Full time (24 UOC a semester for 1 year)
ZEIT4303 Information Systems Honours Special Topic 3 full time (24 UOC)

Part time (12 UOC a semester for 2 years)
ZEIT4304 Information Systems Honours Special Topic 4 part time (12 UOC)

Combined Honours

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 part of their undergraduate degree. In their fourth year of study they undertake the following courses.

Full time (24 UOC a semester for 1 year)
ZEIT4301 Information Systems Honours Special Topic 1

Part time (12 UOC a semester for 2 years)
ZEIT4302 Information Systems Honours Special Topic 2

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

International and Political Studies

School of Humanities and Social Sciences

Programs Available: 4400, 4461

Stream Summary

International and Political Studies involves the study of power - how it is exercised and by whom, and how its privileges and responsibilities are a focus of conflict. The program is designed for students who are interested in politics and international affairs in a rapidly changing global environment. Our courses cover the major actors, ideas and key issues of domestic, regional and global politics, all of which have a profound impact on Australia's national security and its place in the world. The program emphasises the development of critical thinking and high-level analytical and communication skills. The skills and knowledge gained through the program are valuable for members of the ADF, which operates in an increasingly challenging domestic and international environment.

Stream Structure

In the first year the teaching program is designed to introduce students to the theories and key issues of Australian politics and international relations. International and Political Studies (IPS) 1A examines the role of ideals, interests and power in the Australian political system. International and Political Studies (IPS) 1B covers world politics, the shifting balance of power, international organisations, and the sources of conflict.

In years 2 and 3, the teaching program focuses on four themes:

– International relations
– Countries of strategic significance to Australia
– Security studies
– Political thought

A major in International and Political Studies comprises:

Two Level I courses:
ZHSS1401 IPS1A: Ideals, Interests and Power
ZHSS1402 IPS1B: World Politics

Plus 36 UOC which must be from Level II and III courses, with at least 18 UOC at Level III.
Level II courses:
ZHSS2403 Politics of China
ZHSS2410 Modern Political Ideologies
ZHSS2412 Politics of Australian Security
ZHSS2416 The Politics of Southeast Asia
ZHSS2423 Key Political Thinkers
ZHSS2424 The Application of Air Power
ZHSS2427 Politics of the Great Powers
ZHSS2428 Great Clashes that Define Us
ZHSS2503 State Systems in Pre-Colonial SE Asia
ZHSS2600 Practical Ethics

Level III courses:
ZHSS3402 Political Cultures in Asia and Pacific
ZHSS3414 Regional Security Issues
ZHSS3417 Ethnic Conflict
ZHSS3421 Political Philosophy
ZHSS3422 Politics of Globalisation
ZHSS3425 Air Power in Small and Irregular Wars
ZHSS3431 International Human Rights
ZHSS3432 Justice, Norms and Practice
ZHSS3433 International Politics and Ethics of War
ZHSS3434 Australia: Who Really Holds Power?

Students may also include the following courses as part of an International and Political Studies major:
ZHSS2104 Studies in the Media
ZHSS2117 Genocide
ZHSS2230 Contemporary African History
ZHSS2506 Development Policies
ZHSS3501 Islam and Challenges of Modern

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 International & Pol. Studies Honours is at the discretion of the Head of School. Interested students should contact the Honours Program Coordinator within HASS.

Mathematics and Statistics
School of Physical, Environmental and Mathematical Sciences
Programs Available: 4410, 4463

Stream Summary
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. These are universal skills which are applicable to virtually any task and are of value to anyone who has to face complex problems and make decisions. Hence mathematics is crucial in one’s professional life, including the ADF.

Science, Engineering and Technology are based on mathematical thinking and use the language of mathematics. The Humanities, the Natural Sciences and the business world draw on the power of mathematics 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.

Stream 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 both Level I Mathematics courses, or at least the Level I Mathematics course ZPEM1301 Mathematics 1A. The course ZPEM1302 Mathematics 1B is a prerequisite for Level II and Level III Mathematics courses.

Level II and III courses delve into mathematical methods in greater depth and examine a variety of applications. Several of the courses taught are related, in some way, to the research that is currently undertaken by staff members. Students are shown, first hand, the crucial role that mathematics and statistics play in various areas of Science, Engineering and Technology.

For the recommended double major combinations involving Mathematics and the corresponding study plans please see www.unsw.adfa.edu.au/degree/undergraduate/defence/science
A Major sequence in Mathematics and Statistics comprises the following Level I courses:

- ZPEM1301 Mathematics 1A
- ZPEM1302 Mathematics 1B

Plus the following Level II courses:

- ZPEM2302 Mathematical Tools for Science
- ZPEM2311 Mathematical Modelling
- ZPEM2313 Discrete Mathematics

Plus the following Level III courses:

- ZPEM3301 Topics in Mathematics
- ZPEM3311 Math Methods for Diff Equations
- ZPEM3313 Applied Nonlinear Dynamics

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Oceanography

School of Physical, Environmental and Mathematical Sciences

Programs Available: 4410, 4463

Stream Structure

The Level I course Introduction to Oceanography is designed as a general course suitable for those Science and Arts students majoring in other fields of study. It 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 I Mathematics (ZPEM1301 Mathematics 1A and ZPEM1302 Mathematics 1B or the equivalent in engineering mathematics courses) is a prerequisite for students enrolling in Level II and Level III Oceanography.

For the recommended double major combinations involving Oceanography and the corresponding study plans please see www.unsw.adfa.edu.au/degree/undergraduate/defence/science

A Major sequence in Oceanography comprises two Level I courses:

- ZPEM1402 Introduction to Oceanography
- ZPEM1501 Physics 1A

Note: Level I Mathematics (ZPEM1301 and ZPEM1302) is a prerequisite for Levels II and III Oceanography

Plus the following Level II courses:

- ZPEM2213 GIS & RIS
- ZPEM2401 Australian Waters
- ZPEM2506 Physics 2A

Plus the following Level III courses:

- ZPEM3222 Coastal Geomorphology
- ZPEM3532 Advanced Topics Physics/Ocean
- ZPEM3401 Ocean Circulation and Mixing

OR

- ZPEM3404 Ocean Waves and Modelling

depending on which course ZPEM3401 or ZPEM 3404 is being offered at the time of enrolment.
Operations Research
School of Engineering and Information Technology
Programs Available: 4410, 4463

Stream Summary
Operations Research is one of three disciplines of study offered in the field of Information Technology. 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.

Stream Structure
A Major sequence in Operations Research comprises two Level I courses:

Please note that the courses selected in Semester 1 will pre-determine the course selection for Semester 2 within this plan.

ZEIT1101 Computational Problem Solving
ZEIT1102 Introduction to Programming
ZEIT1301 Introduction to the IT Profession
ZEIT1302 Introduction to Systems Thinking
ZPEM1301 Mathematics 1A
ZPEM1302 Mathematics 1B

plus 2 specified Level II courses in Operations Research:

Level II courses:

ZEIT2307 Capability Option Analysis
ZEIT2403 Introduction to Operations Research

Level III courses:

ZEIT3101 IT Project 2
ZEIT3118 IT Project 1
ZEIT3405 Problem Structuring Techniques
ZEIT3406 Quantitative Operations Research

Honours
Honours is not currently available in Operations Research.

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Physics
School of Physical, Environmental and Mathematical Sciences
Programs Available: 4410, 4463

Stream Summary
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.

Stream Structure
Level I Physics is structured primarily to lead into Level II Physics. However, ZPEM1501 Physics 1A: Mechanics, Waves and Thermodynamics and ZPEM1502 Physics 1B: Electromagnetism and Modern Physics are self-contained courses suitable for Science and Arts students 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.
Level I Mathematics (ZPEM1301 Mathematics 1A and ZPEM1302 Mathematics 1B or the equivalent in engineering mathematics courses) are prerequisites for students enrolling in Level II and Level III Physics. ZPEM2302 Mathematical Tools for Science is a prerequisite for the Level II course ZPEM2502 Physics 2B: Electrons, Photons and Matter and Level III Physics. For students doing a double major in Physics and Aviation, the two Level 1 Mathematics units are to be part of the Aviation major since the Level 1 Physics units are counted towards the Physics major. ZPEM2302 Mathematical Tools for Science is a prerequisite for the Level II course ZPEM2502 Physics 2B: Electrons, Photons and Matter and Level III Physics.

For the recommended double major combinations involving Physics and the corresponding study plans please see www.unsw.adfa.edu.au/degree/undergraduate/defence/science

A major sequence in Physics comprises the Level I courses:
ZPEM1501 Physics 1A
ZPEM1502 Physics 1B

Plus the following Level II courses:
ZPEM2502 Physics 2B
ZPEM2506 Physics 2A

Plus the following Level III courses:
ZPEM3103 Applications of Quantum Theory
ZPEM3503 Electromagnetism and Materials
ZPEM3528 Thermodynamics and Nuclear Physics
ZPEM3532 Advanced Topics Physics/Ocean
Course Catalogue

Course offerings and timetable information

How do I find the latest course and program information?
The UNSW Online Handbook is automatically updated for any late changes to course offerings, timetable changes or lecturer information.

Add a favourite to this web link www.handbook.unsw.edu.au or access the Online Handbook from the myUNSW homepage.

The easiest way to search the Online Handbook is to:
1. Click on “Undergraduate Study”;  
2. In the left side panel – click on search “Programs by Faculty”;  
3. Select “UNSW Canberra at ADFA”;  
4. Select your program;  
5. The “Program Description” will identify the degree and its majors and courses;  
6. If you wish to search for other courses – go to the left panel and click on “Courses A-Z”;  
7. All UNSW Canberra courses are coded with a Z prefix.

How do I find my timetable information?
Each student has an individual timetable based on their enrolment selection through their myUNSW account.

Course timetable information is available via the Online Handbook or myNSW.

When you select a course on the Online Handbook, click on “Further Information: See Class Timetable” in the course header. This link will provide you with class time, class activities, e.g. tutorials or lab classes, room and venue details, and lecturer name.

How do I find my class room?
Your timetable details will be listed, e.g. Lecture Theatre North 12 (Z-32-LT12)

This coding means: Z = ADFA campus; 32 = Building 32; LT = Lecture Theatre 12

See the inside back cover of this guide for a copy of the ADFA campus map.

How do I access future semester information?
Course offering information for the following year is published on the UNSW Canberra Student Gateway in November.

Course offerings and timetable information is also generally available via the UNSW Online Handbook:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Date</th>
</tr>
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<tbody>
<tr>
<td>Semester 1</td>
<td>mid October</td>
</tr>
<tr>
<td>Semester 2</td>
<td>mid May</td>
</tr>
</tbody>
</table>
Using the UNSW Canberra course catalogue

Code Prefix
The letters at the start of a course code show which school is running the course. General Education and Interdisciplinary courses, which are run by several schools, are distinguished by a separate prefix.

ZBUSXXXX – Course offered by SBUS
ZEITXXXX – Course offered by SEIT
ZGENXXXX – General Education course
ZHSSXXXX – Course offered by HASS
ZINTXXXX – Interdisciplinary course
ZPEMXXXX – Course offered by PEMS

Code Suffix
With the exception of General Education (ZGEN) and Interdisciplinary (ZINT) courses, the first digit at the end of a course code indicates the level of a course.

Undergraduate
ZXXX1000 – Level I or 1st year UG Course
ZXXX2000 – Level II or 2nd year UG Course
ZXXX3000 – Level III or 3rd year UG Course
ZXXX4000 – Level IV or Honours UG Course

If a course description includes a prerequisite, you cannot enrol in the course until you have completed the specified course/s (or equivalent).

If a course description includes an exclusion, it means you cannot enrol in the course if you have already completed the specified course/s (or equivalent).

Some courses may indicate that you require School Approval before your enrolment is confirmed. If this is the case, you will need to complete an Enrolment Variation form, available from SAS or the UNSW Canberra student gateway.

Units of Credit
All courses listed in the Course Catalogue are 6 UOC unless specified otherwise.

ZBUS1101 Organisational Behaviour
HPW3
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 may be organised 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, stress, team effectiveness, decision-making, power, conflict, and leadership, organisational structure, design, culture and change.

ZBUS1102 Business Economics
HPW3
The course introduces you to the main principles of economics. It briefly reviews the development of ideas in the discipline and provides the foundation to understanding the economic environment in which organisations conduct business. Students will learn how economists model behaviour of individuals and firms. They will also learn how policies are used by governments to influence outcomes in the market place.

ZBUS1103 Introduction to Accounting
HPW3
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 and financial statement analysis.

ZBUS1104 Foundations of Management (Integrating Core 1)
HPW3
This course is the first of three, comprising the Integrating Core in the BBus degree. The Integrating Core courses aim to systematically develop the critical thinking, research and problem solving skills that are required for success in business environments. This course presents management as a profession that is founded on research. It outlines the broad range of activities that constitute management and shows how different management activities can be supported by different types of research. It aims to develop managers who use research evidence to support decision making and policy making. In this course, students learn how to locate and critically analyse information in the management research literature. The course has a particular focus on developing Graduate Attributes and 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.
ZBUS2101  Business Law
HPW3
This course aims to provide a general understanding of the law and legal processes operating within a private or public business context. The course introduces students to a range of legal topics and issues underpinning the conduct of commercial enterprises and making of business decisions. There is particular emphasis on contract law as a key knowledge tool for working effectively in the procurement processes of large organisations (such as the Defence Department). Legal analysis, writing and problem solving skills are developed throughout the course.

ZBUS2202  Australia and the World Economy
HPW3
Prerequisite: ZBUS1103
This course uses the understanding of macroeconomics gained in the course Business Economics is extended by developing models used to analyse open-economy macroeconomic fluctuations and policies. The analytical framework is applied to current macroeconomic issues.

ZBUS2207  Governing Australia: Managing the Public Sector
HPW3
The course focuses on strategic level management of the Australian public sector and comprehends setting objectives, planning implementation and marshalling resources. Students completing this course will understand how Australian public policy objectives are set, how public policy programs are implemented and how competition for limited policy resources is adjudicated. Students will be encouraged to evaluate the ADF's role in the policy process and to assess critically wider policy and management issues.

ZBUS2302  Leadership
HPW3
Prerequisite: ZBUS1101
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.

ZBUS2820  International Business
HPW3
This course exposes students to several higher order business concepts including strategy, marketing, and management. Importantly, the focus of this course is in the application of theory to real-life situations encountered by organisations. The international context underpins these discussions. This is important due to the global nature of interactions students are likely to encounter during their careers.

ZBUS3102  Project Management
HPW3
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 organisation, planning and overview modelling, scheduling, budgeting, resource allocations, risk management, communication and monitoring, control and evaluation, reporting, auditing and project termination.

ZBUS3103  Human Resource Management
HPW3
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 workplace.

ZBUS3104  Business Capstone
HPW3
Business Program (4405 or 4462) and ZBUS1104
This course builds on skills of problem definition, analysis and decision making, by showing how solutions may be implemented in business and organisational settings. It applies organisation theory and social network analysis to diagnose strengths and weaknesses of organisations and informal networks. Study in this course also draws on theories of leadership, negotiation, organisational change, structure, culture, economics and politics. It considers the formulation of business strategy and its implementation in an environment of continuous change.

ZBUS3203  The Making of Economic Policy
HPW3
Prerequisite: ZBUS1103
This course deals with the process of economic policy making and analyses the rationale for, and implications of, economic policies in open economies. Topics covered may include rationale 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.

ZBUS3206  Managing People Across Cultures
8HPW3
Prerequisite: ZBUS3103
This course provides students with the critical knowledge and skills to manage and work in environments that include people from cultures other than their own. The course provides conceptual and theoretical frameworks for developing an understanding of the potential 'people problems' that arise from different cultural backgrounds and how these challenges impact upon managing work in organisations.

ZBUS3303  Logistics Management
HPW3
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.
Computation underpins our ‘daily digital life’. Students taking this course will receive a foundational background in computational problem-solving. On the theoretical side this includes an introduction to logic, along with the scientific and engineering methodologies, design principles, and a grounding in the theories and models of computation. In parallel practical skills of problem structuring, solution design, algorithm writing, structured programming, and data representation within a computational environment will be acquired. Theoretical and practical lessons are contextualised in the modern IT environment with introductions to core computer science topics such as operating systems, networks, simulation, and programming languages. Students will design and implement a number of solutions to computational problems - bringing together the theory, milieu, and practical skills acquired in the course.

**ZEIT1101 Computational Problem Solving**

**Prerequisite: ZEIT1101**

Introduction to Programming builds on Computational Programming Solving, concentrating on computer programming in an object-oriented paradigm. By the end of the course, students will be able to effectively analyse a well-defined problem, design a program solution, and will be able to efficiently implement the solution in Java. Topics include algorithms, classes and objects, object-oriented design, control structures, applets, data structures, searching and sorting, and recursion.

**ZEIT1102 Introduction to Programming**

**Prerequisite: ZEIT1101**

Computer Games takes an IT professional and computational view of the technology and industry of computer games. The focus is primarily upon the technological dimension - simulation, graphics, human computer interaction, AI, etc. - with lesser emphasis on the social and business dimensions. Further, the course contains a significant design & development theme, the generic and game specific principles of design will be examined; while students will critically analyse (from a design perspective) a successful game and develop their own game content.

Finally, the course will expose students to the critical role that play has for healthy human development and the way that modern defence forces (and other organisations), including the ADF are employing serious games and utilising the technology of computer games to meet some of their training, education, recruitment, decision-support or other requirements.

**ZEIT1110 Computer Games**

**Prerequisite: ZEIT1101**

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. 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.

**ZEIT1206 Design of Electronic Circuits 1**

This course explores Ohms Law, Kirchoff’s Laws, 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. The course also provides 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 electrical engineering 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.

**ZEIT1208 Introduction to Electrical Engineering**

This course is available to students in the BE(Elec-CDF) program. Students will be required to attend specialist School seminars on at least six occasions during the Session. In addition, students will attend lectures and undertake assessment relating to the material outlined for ZEIT1208 Introduction to Electrical Engineering.
ZET1291 Electrical Engineering Research 1B
HPW6
This course is available to students in the BE (ElecCDF) program. Students will be required to undertake a comprehensive literature review chosen from a list of topics selected or approved by the Head of School. At least one staff member will be nominated as a supervisor to provide guidance and general supervision during the literature review and preparation of the written report and seminar. Late in the Session each student will be required to lead a seminar attended by other students and members of staff. Evidence of sufficient progress may be required from time to time. The literature review, which will have a nominal length of 2000 words, is to be presented not later than the first day of the examination period. Literature reviews must be presented both typed and in electronic form. In addition, students will attend lectures and undertake assessment relating to the material outlined for ZET1296.

ZET1301 Introduction to the IT Profession
HPW5
Introduction to Information Technology outlines the IT discipline including a brief review of its history, a survey of how IT has become pervasive in society, the concept of an IT profession and the issues the IT profession faces. The course will then turn to a brief historical review of the development of computing technologies, software and its usability, and point to some likely future technologies. Finally, the course will outline how IT professionals work together and how the IT profession integrates with other professions in the broader workplace and society.

ZET1302 Introduction to Systems Thinking
HPW5
Prerequisite: ZET1301
Introduction to Systems Thinking provides students with the basic tools for problem solving in an organisational context where information is a key part of the solution. The course begins by introducing the fundamental concepts needed to understand systems thinking. This is followed by an overview of several holistic approaches for improving organisational performance, including General Systems Theory (GST), organisational cybernetics, Peter Senge’s Fifth Discipline, and complexity science. The course then describes several methods and techniques that can be used to as part of a system intervention, ranging from soft system methods such as Soft System Methodology (SSM) through to more hard system methods such as systems and software engineering.

ZET1500 Statics
HPW4
This course is a foundation for many engineering and technology disciplines. It provides an introduction to Newtonian mechanics with applications to stationary particles, rigid bodies, beams, trusses, frames and machines. Topics include force vectors, Cartesian vectors and operations, force system resultants, moments, equilibrium of particles and rigid bodies, internal forces in structural members and free body diagrams, dry friction, centres of gravity, centroid of areas, lines and volumes, and moments of inertia.

ZET1501 Engineering Practice and Design
HPW8
This course provides an introduction to engineering practice and design with an emphasis on communication of engineering information. Emphasis is placed on Computer Aided Design (CAD), sketching, schematic diagrams and specification writing. Other topics covered include safety, ethics, and practice of engineering in the services. Students will participate in skills workshop relevant to their degree streams during the May training period. The delivery of the course will be predominantly through studio based small group activities supported by key lectures.

ZET1502 Dynamics
HPW4
This course is a foundation course for many engineering and technology disciplines. It 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.

ZET1600 Introduction to Civil Engineering
HPW6
This course introduces students to the Civil Engineering discipline and its various specialised fields. They will learn to communicate engineering information effectively, using engineering drawings. Students will achieve knowledge of the interface between design, surveying and construction. Students will also learn surveying techniques and will be introduced to the geometric design of rural roads, airfields.

ZET1690 Civil Engineering Research 1A
HPW1
This course is available to students in the BE(Civil)(Hons) (CDF) program. Students will be required to attend specialist School seminars on at least six occasions during the semester. In addition, students will attend lectures and undertake assessment relating to the material outlined for ZET1600 Introduction to Civil Engineering.

ZET1901 Engineering Research 1A
HPW6
This course is restricted to those students undertaking the BE(Aero)(CDF), BE(Civil)(CDF), BE(Mech)(CDF), or BTech(Aero)(CDF) programs. Students undertaking this course will attend lectures and complete the assessment tasks for ZET1600 Introduction to Civil Engineering for BE(Civil) students and ZET1501 Engineering Practice for the other degree programs. In addition, students will attend a number of research seminars within the School and demonstrate an understanding of the research problems and solutions presented in the seminars, as an introduction to the discipline of engineering research.
Students are introduced to project management principles, and gain practice in application of project management skills in the practical work in the course. Students also study quantitative methods for describing transient behaviour in electronic circuits.

**ZEIT2208 Programmable Digital Systems**  
HPW6  
Prerequisite: ZEIT1208  
Interfacing with the analogue world; Digital-to-Analogue conversion; Analogue-to-Digital conversion. Synchronous system design; Practical timing constraints when implementing digital logic circuits, Signal conditioning, buffers/latches, buses, Operation of standard TTL, ECL and CMOS devices; Interfacing digital circuits from different logic families, Introduction to VHDL, C programming language for embedded processor development, Microprocessor solution for electronic control, Field Programmable Gate Arrays, Interfacing of peripheral hardware in serial/parallel; memory and IO spaces of the processor, Interrupts, Serial communication via RS232, Examples of modern bus systems and signalling.

**ZEIT2301 Solution Design**  
HPW5  
Prerequisite: ZEIT1302  
This course enables the students to use basic Software Engineering practices to design a Decision Support System for a small group.

**ZEIT2306 Service Design**  
HPW3  
Prerequisite: ZEIT1302  
This course introduces students to the basic Service Management practices that are used to design IT services.

**ZEIT2307 Capability Option Analysis**  
HPW3  
Prerequisite: 36 Units of Credit in Level 1 courses  
This course trains students into giving qualitative and quantitative insights into the relative merits of agreed options by using live and constructive simulation, studies and experimentation tools to provide rigour and structured analysis to support major decisions. Topics covered include: Business Cases, Options Development, Best Practice of Experimentation and Experimentation Design, Measure of effectiveness and data collection, Gaming, Agent-based Modelling, Experimentation, Decision Making Under Uncertainty and Risk, SMART and AHP.

**ZEIT2403 Introduction to Operations Research**  
HPW3  
Operations research - a topic conceived in the Second World War by the US military - is the science of understanding and analysing problems to come up with a recommended course of action. It mimics the Military Appreciation Process. This course introduces students to the wide variety of models in Hard and Soft Operations Research (OR). The course starts with an overview of OR, its history, the code for best practice, and problem formulation. Hard OR topics will include linear programming, network theory, project management, trend analysis, probability theory, queuing theory and game theory. Soft OR topics will include an introduction to soft OR and simulation.
This course is an introduction to compressible flows. It develops an understanding of the basic properties of fluids, fluid statics, simple analysis of fluid motion, the laws of thermodynamics, and the application of control volume techniques to engineering problems.

**ZEIT2501**  Mechanical and Electronic Design  
HPW4  
The project develops sound design principles through participation in the Warman Design and Build Competition, which is a small-group, project-based learning activity. This project is mechatronic in nature and students will be exposed to the broad principles of mechanical and electronic design and engineering report writing. The lectures will deliver the relevant material for the successful completion of the project.

**ZEIT2502**  Fundamentals of Flight  
HPW3  
Prerequisite: ZPEM1302 or ZPEM1304  
This course introduces the student to the fundamentals of aerodynamics, aircraft performance and stability. The following topics will be introduced: Aircraft components; Properties of the atmosphere; Bernoulli’s equation; Altimetry and airspeed; Elements of fluid flow - boundary layers, laminar and turbulent flow; Subsonic and supersonic flow; Aerodynamic lift, drag and pitching moment; Wings; Propulsion; Aircraft performance cruise, climb, take-off and landing, load factor, turning flight; Key factors in aircraft stability. Subject to aircraft availability a flight laboratory will be offered.

**ZEIT2503**  Fluid Mechanics  
HPW3  
Prerequisite: ZEIT1502, ZEIT2500, ZPEM1303 and ZPEM1304  
This course covers fundamental aspects of fluid mechanics. It aims at developing an understanding of the physical mechanisms underlying fluid flow. It contains a review of the fundamental equations of Fluid Mechanics, an expansion of the methods of momentum analysis known from Thermofluids, and a detailed discussion of the powerful technique of Dimensional Analysis, which allows the systematic discovery of parameter sets that govern the characteristic features of a flow. These techniques will be used in engineering applications, such as the fluid mechanical treatment of turbomachines and devices for flow measurement. Special emphasis will be given to friction effects in fluid flows. Several examples of flows in which friction is important, such as Couette flows, pipe flows and boundary layers will be discussed. The final chapter of the course is an introduction to compressible flows.

**ZEIT2504**  Mechanics of Solids  
HPW5  
Prerequisite: ZEIT1500  
The mechanical behaviour and analysis of solid objects under various loadings is considered in this course. The fundamental concepts of stress and strain are introduced to quantify the behaviour of structural components. The aim of the course is to provide students with fundamental knowledge regarding the examination of the stresses and strains inside bodies of finite dimensions that deform under loads using the physical properties of the materials as well as various theoretical models and concepts. Experimental material characterization and techniques for solving for stresses, strains and displacements of rods and torsional shafts, bending in beams and buckling of columns also form part of the syllabus. The course extends the work done in Statics to enable detailed behaviour of deformable solids under complex loading to be presented.

**ZEIT2601**  Soil Mechanics and Engineering Geology  
HPW6  
Prerequisite: ZEIT1500  
This is an introductory course that addresses: introductory aspects of engineering geology; engineering classification of soils; effective stress principle; effects of drainage conditions; final settlement due to 1 D consolidation; 1 D seepage and effects on effective stress; and failure of soils.

**ZEIT2602**  Hydraulic Engineering  
HPW6  
Prerequisite: ZEIT1502  
This course covers fundamental aspects of fluid mechanics and hydraulics. It contains a review of the fundamental equations of Fluid Mechanics, an expansion of the methods of momentum analysis known from Thermofluids, and a detailed discussion of the powerful technique of Dimensional Analysis, which allows the systematic discovery of parameter sets that govern the characteristic features of a flow. Special emphasis will be given to friction effects in fluid flows. The course then examines several important applications in civil engineering, including friction and minor losses in single pipelines and pipe networks, pump-pipe systems and open channel flow; the latter will include friction losses and conservation of energy and momentum principles.

**ZEIT2700**  Mechanics of Machines  
HPW5  
Prerequisite: ZEIT1500 and ZEIT1502  
This course will combine concepts learned in Statics and Dynamics in the context of mechanisms analysis and design. The students will learn about the different types of links and joints making up mechanisms; kinematics and kinetics of mechanisms; design and analysis of cams, gears and drive trains; static and dynamic force analysis; synthesis of coupler curves; balancing of rotating and reciprocating masses.
This course provides an introduction to flight. Within an historical framework, the student will be introduced to the basic science of flight with regard to the development of aeronautics, airframes and propulsion technologies. The lectures will highlight key areas in the advance of aviation as a discipline. Subject to aircraft availability a flight laboratory may be offered.

**ZEIT2802 Aircraft Systems for Aviators**

This course explores the purpose and general arrangement of aircraft systems and propulsion technologies. The role of the operator - pilot or engineer - will be discussed with reference to the concept of integrated aircraft system design and function.

**ZEIT2803 Aviation Safety**

Using a systems approach, this course will deal with the various elements which influence safety in aviation including aircrew, aircraft, maintenance, management operations and airspace with an emphasis on human performance. The focus of the course is 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, incorporating human behaviour, information processing, time management and situational awareness, judgment and decision making, the senses, human error, automation, risk management, safety culture and emergency planning. A number of aircraft incidents and accidents will be analysed to illustrate key concepts in flight safety. Industry practitioners will deliver guest lectures and local field trips to aviation safety-related civil and military organizations are planned.

**ZEIT2901 Engineering Research 2A**

Undertake problem-based learning or research project on a nominated topic approved by the course authority in a specific discipline area that is commensurate with study at Year 2 level. As one of the aims of the program is to further develop critical thinking and independent research skills, the project will involve "hands on" research experience in collaboration with a staff member and their research team. A supervisor, who will work closely with the student, will manage each project. Final assessment will be based on a written paper and an oral presentation, with appropriate weighting.

**ZEIT2902 Engineering Research 2B**

Undertake problem-based learning or research project on a nominated topic approved by the course authority in a specific discipline area that is commensurate with study at Year 2 level. As one of the aims of the program is to further develop critical thinking and independent research skills, the project will involve "hands on" research experience in collaboration with a staff member and their research team. A supervisor, who will work closely with the student, will manage each project. Final assessment will be based on a written paper and an oral presentation, with appropriate weighting.

**ZEIT3101 IT Project 2**

Prerequisite: ZEIT3118

This is the second half of a year-long course. Students must also have completed ZEIT3118 IT Project 1 before being awarded any UOC.

**ZEIT3102 Cryptography**

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.

**ZEIT3104 Electronic Business**

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 applications 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.

**ZEIT3110 Service Management**

Prerequisite: ZEIT2306

This course enables students to use basic Service Management practices to manage service transition and operation for a IS unit, with an emphasis upon problem-solving.

**ZEIT3111 Special Topic**

Occasional topics of relevance in the area of Information Technology, given by visitors or external lecturers or members of staff.

**ZEIT3112 Special Topic 2**

Occasional topics of relevance in the area of Information Technology, given by visitors, external lecturers or members of staff.

**ZEIT3113 Computer Languages and Algorithms**

Prerequisite: ZEIT2103

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 and applications especially in sorting algorithms.
ZEIT3114 Internetworking
HPW3
Prerequisite: ZEIT2102 or ZEIT2902
This course aims to further the students’ knowledge of Internetworking with TCP/IP. In particular, it examines advanced IP addressing, routing with advanced routing protocols and network security.

ZEIT3115 Systems and Network Administration
HPW3
Prerequisite: ZEIT2102
This course will cover systems administration in depth. While there are numerous brands of systems in use today, the fundamental architecture remains constant. As such, the practical elements of this course will be based on a single operating system, Linux. Hence some working knowledge in Linux will be helpful. This course will introduce you 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 user, device and file system administration, computer and network security, system monitoring, administrative support tools, network, server and client administration.

ZEIT3118 IT Project 1
HPW3
Prerequisite: 96 Units of Credit
This is a capstone course in the degree. The Project affords the opportunity to take skills and knowledge from other courses in the degree and forge a contribution to the IT discipline by a research investigation, a feasibility study, a design project, or a comprehensive literature review and analysis project, chosen from a list of topics approved by the Head of School. To the extent possible, topics will be solicited and sponsored by the Australian Defence Force. Students are expected to take significant ownership of an original piece of work and reflect this to the wider community by presentations and a written thesis. A staff member is nominated as a supervisor to provide guidance and general supervision. Project management techniques will be adopted and assessed in the implementation of the project. A series of briefings will be used to expose the students to basic research strategies and techniques. Evidence of sufficient progress may be required from time to time.

ZEIT3215 Signals and Systems
HPW3
Prerequisite: ZEIT2207, ZPEM2309, ZPEM2310
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 transforms; Fourier spectrum and power spectrum; Parseval’s theorem; Energy spectral density and power spectral density; Discrete time signals and systems; sampling theory and rate conversion; discrete convolution and correlation; Discrete Fourier transform algorithms including FFT; computer aided analysis of digital and analog linear systems.

ZEIT3216 Design of Electronic Circuits 3
HPW3
Prerequisite: ZEIT2207
This course continues the development of the student’s engineering skills through a tight coupling of theoretical and practical skills. Students investigate higher level electronic circuit analysis and design techniques, and apply this knowledge to the design of specific electronic hardware. The topics covered are frequency response of amplifiers, use of approximation techniques for estimating amplifier performance, differential and multistage amplifier design, the use of feedback for improving circuit performance, oscillator and phase-lock loop design, and design of wave shaping and data converter circuits. Additionally students gain experience with issues associated with electronic component parasitics, circuit stability, coupling and decoupling, circuit simulation, prototyping and construction.

ZEIT3218 Communications Techniques
HPW3
Pre: ZEIT3215, ZPEM2309, ZPEM2310
Amplitude modulation: double sideband, single sideband, vestigial sideband. AM modulators and demodulators. Angle modulation: frequency modulation, phase modulation, narrowband FM, wideband FM, FM modulators and demodulators. Multi-signal transmission. Transmitters and receivers; Frequency-division multiplexing; Quadrature multiplexing; Superheterodyne receiver.
Introduction of a digital communication system. Line coding; pulse shaping. Scrambling; Equalization. M-ary communication. Decision theory; channel capacity. Digital carrier systems; ASK; FSK; PSK; QPSK; DPSK. Detection-error probability; Matched filters; Synchronisation.

ZEIT3220 Engineering Electromagnetics
HPW6
Prerequisite: ZPEM2502, ZPEM2309, ZPEM2310
The focus of this course is on developing an understanding of the electromagnetic properties of electronic circuits and electromagnetic devices from an electrical engineering perspective. This course builds upon previous courses in electromagnetics and circuit theory, focussing on the design and utilisation of electromagnetic devices in practical situations. This course will cover transmission lines, antennas, as well as propagation in free-space, metallic waveguides and dielectric waveguides.
ZEIT3221  Digital Signal Processing and Control  
HPW3  
Prerequisite: ZEIT3215, ZEIT3502  
Signal Interpretation in Time and Frequency; Sampling Techniques; Interpolation and Decimation; Sampling from frequency domain and state-space perspectives; Review of Z and Laplace transform techniques; Transfer Functions; Poles and Zeros; Observability; Convolution, Correlation; Disturbance models and random processes. Digital Filters: FIR and IIR filter design and implementations; State-Space design of filters and observers; Pole placement techniques; Fast Fourier Transform algorithms; FFT based filter implementations; Advanced filtering techniques and applications. Design of Digital Feedback Control Systems: State feedback control design; State estimation and observers; Output feedback controller design; Linear quadratic optimal control; Kalman Filters and modern optimal filtering theory.

ZEIT3302  Software Project Management  
HPW5  
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.

ZEIT3404  Simulation  
HPW4  
Prerequisite: ZEIT1101  
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.

ZEIT3406  Quantitative Operations Research  
HPW3  
Prerequisite: ZEIT2403  
Operations research - a topic conceived in the Second World War by the US military - is the science of understanding and analysing problems to come up with a recommended course of action. It mimics the Military Appreciation Process. This course carries on from the course entitled "Operations Research" and trains students on the selection of appropriate techniques by describing the strengths and weaknesses of models and simulation, so that fit-for-purpose methods are applied to soluble problems. It will cover the algorithms used to solve hard OR problems including linear programming, transportation, assignment, integer programming, computational complexity including the theory of NP-completeness, combinatorial optimisation, nonlinear optimisation, dynamic programming, goal programming, multi-objective optimisation, and heuristics.

ZEIT3500  Engineering Structures  
HPW5  
Prerequisite: ZEIT2504  
This course extends the concepts of Mechanics of Solids to applications of Structural Mechanics in Aeronautical and Mechanical Engineering. The topics treated will include bending of indeterminate beams and unsymmetric beams, torsion and transverse loading of thin walled and stiffened structures, energy methods of structural analysis, failure analysis of metallic structures, introduction to fracture mechanics and fatigue behaviour.

ZEIT3501  Engineering Materials  
HPW5  
This course deals with the selection and use of engineering materials for aerospace, civil and mechanical applications. Major topics include metals, timber, polymers, composites and concrete as engineering materials. The course covers the properties and behaviour, selection and use of these materials in broad engineering practice. It discusses the relationships between decisions made in design, materials selection, fabrication and sustainability of engineering structures. It provides guidance in the use of Codes and Standards in engineering practice and links with relevant design courses in Years 3 and 4.

ZEIT3502  Vibration and Control Engineering  
HPW3  
Prerequisite: ZPEN2309, ZPEN2310  
This course provides a foundation in modelling dynamics of engineering systems and leads to solution of practical problems in vibration and automatic control. Free body diagrams and energy methods will be shown. Solution of free and forced response will be investigated. Basic vibration analysis will be used to apply vibration isolation methods. Multiple degree of freedom systems including lumped parameter systems will be introduced leading to the eigenvalue problem and modal analysis. The course will enable students to design effective feedback control using a broad range of control design tools including mathematical modelling of system components, block diagram manipulation, linearisation, Laplace transform, root locus, frequency domain and state space techniques. Students will study practical controllers such as the PID controller.

ZEIT3503  Aerodynamics  
HPW3  
Prerequisite: ZEIT2500, ZEIT2503, ZPEN2309 and ZPEN2310  
This course examines the behaviour of airfoils, wings, slender bodies and aircraft in incompressible and compressible subsonic as well as transonic and supersonic flows. Two dimensional flows over airfoil sections and other lifting bodies are explored using potential flow, and concepts such as superposition, vorticity, and circulation are developed. Three-dimensional flows over wings and propellers are explored with lifting line theory, panel methods, and blade element theory. Compressible flow effects, shock-expansion theory, method of characteristics are explored.
This course introduces the requirements of designing to relevant standards and regulations. The phases of aircraft design are discussed before design specification development is undertaken. Students will undertake project planning, design report writing and technical presentations. Students will develop fixed wing aircraft using initial sizing parameters, to determine weight estimates, performance parameters, aerodynamic coefficients and physical dimensions. Students can then construct aircraft performance charts, and prepare initial stability and control plots. Refined sizing allows improvements of the design. Aircraft cost estimation methods are investigated. Trade studies can then ensure that the best design is achieved. Students will undertake an aircraft design project during this course.

This course will introduce the basic forces acting on the aircraft and their relevance to statics and dynamics of aircraft. The initial part of the course will deal with the static force and moment balance on the aircraft that leads to static stability concepts, the location of centre of gravity and the necessity for control surfaces for the aircraft. The second part of the course will deal with the dynamics of the aircraft under the influence of aerodynamic forces and moments. The mathematical modelling of the aircraft, its transfer functions and aerodynamic stability derivatives are discussed. Stability augmentation and autopilots along with Handling Qualities of the aircraft as specifications for control design will be discussed. The effects of gust and practical implementation of control systems in aircraft will also be introduced.

In this course, students will learn the fundamentals of the behaviour of elastic structures composed of line elements, i.e. skeletal structures, when subjected to various actions. They will become familiar with commonly used structures and will be able to analyse the effects of forces on various components such as frames, trusses, beams and beam-columns. Students will learn of the significance of deflections for structures and how they may be assessed using a variety of techniques. Students will also learn techniques to assess the post-yield behaviour of sections and how this behaviour may be used to assess the failure response of simple structural systems.

This course introduces the principles and applications of environmental engineering. It includes the fundamentals of environmental chemistry, microbiology, single species kinetics, interacting species and unit operations. Applications include studies of jets, wakes and plumes, dispersion of pollutants, surface water pollution, soil and groundwater contamination, air pollution and noise pollution.

Geotechnical design is the branch of civil engineering related to soil mechanics, stability of soil structures and soil/structure interaction. Geotechnical design covers problems in foundation design, design of retaining structures, design of earth and rock fill dams, slope stability analysis, groundwater flow modelling, earthquake engineering, landfill design, and more. Almost all man-made structures involve some type of geotechnical engineering problem. This course builds on what you have learnt in Geotechnical Engineering and Engineering Geology in your Second year to learn more of the basic soil mechanics principles and to apply them to solve common geotechnical engineering problems.

This course will introduce you to the design of a range of steel and timber members and member connections using the relevant Australian Standards. You will also be introduced to the determination of appropriate design loads for structures and their components - in particular wind loads on structures. As this is a design course you will be expected to be proficient in the basic concepts of structural analysis and mechanics of solids. Topics to be covered include: Design of steel members to resist individual and combined actions; Understanding of second order effects; Stability of building frames; Design of steel connections; Structural steel detailing; Wind loading on structures; Design of simple building frames; Use of Design Capacity Tables; Introduction to Timber Structures.

This course introduces students to the underlying principles and practice of managing a variety of civil engineering design and construction projects. It covers tender document analysis, evaluation and production, quantity surveying, cost budgets, variations, reporting, building codes, project reporting, tools for programming, control and claims, and political as well as social and environmental dimensions. Students will learn facility design, information and management systems. They will also gain knowledge and skills in dispute resolution from a contractor and arbitrator perspectives.
ZEIT3700  Mechanical Design 1
HPW5
Prerequisite: ZEIT2504

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 and damage tolerance are discussed. Students will be exposed to conceptual design of systems and subsystems and to design as a constructive, systematic, integrative process.

Other topics to be covered include methods for design selection, requirement analysis and mathematical modelling and optimization. Relevant project-based domain topics will be covered. The course will be a blend of lectures, tutorials and studio-based design activity with individual and group activities.

ZEIT3701  Heat Transfer and Refrigeration
HPW5
Prerequisite: ZEIT2503

This course develops an understanding of the heat transfer mechanisms of conduction, convection and electromagnetic radiation, as well as the thermodynamics of gas mixtures, humidification and air stream mixing. These concepts are applied to ideal and real refrigeration and air conditioning cycles. A range of engineering applications involving steady and non-steady heat conduction, forced and free convection, and emission and heat transfer between black and grey bodies are examined with analytical and numerical techniques.

ZEIT3801  Advanced Aviation Safety
HPW4
Prerequisite: ZEIT2803

The focus of this course will be on systems safety management programs. Topics will cover the role of proactive safety systems including: crew resource management, safety culture, operational reporting systems, safety audits, attitudinal and behavioural assessment and other metrics. The course will cover accident prevention strategies, risk management and safety program evaluation methodology. Case studies will be used to illustrate safety concepts.

ZEIT3802  Project and Practical Experience
HPW5
Prerequisite: ZEIT1500 and ZEIT1502

This project will take the form of a minor piece of research or investigation, feasibility study, or a literature review. The course will enhance students' skills in research, task management and technical communication. Students must also have completed Practical Experience before being awarded any credit.

ZEIT3803  Air Traffic Management
HPW5

The aim of this course is to introduce students to Air Traffic Management (ATM). Students will be introduced to fundamental concepts in ATM, including communications, navigation and surveillance (eNS) infrastructure, regulatory frameworks, and operational procedures. Students will also be introduced to contemporary issues in ATM, including concepts of ‘free flight’ and associated changes in ATM systems.

ZEIT3804  Behavioural Science Project and Practical Experience
HPW6

This course centres on a project in the form of a minor piece of research or investigation applying behavioural science approaches in the field of aviation and human factors. The course will enhance students skills in research, task management and technical communication. Students must also have completed Practical Experience before being awarded any credit.

ZEIT3805  Airport Operations and Systems
HPW5

This course will provide an introduction to airport operation and systems and will cover the topics of airport planning, airport operations, airport navigation aids, airport weather, airport procedure charts and airport quantitative modelling. Aspects of the design and operation of airport systems will also be reviewed. The course will cover interaction of various airport sub-systems and their impact on the overall performance of air transportation system through quantitative modelling. Students will also gain an insight into trade-offs amongst conflicting objectives of various stakeholders/ users of airports for e.g., military, airlines, safety regulators, air navigation service providers and airport authorities. The course will also provide students an understanding of environmental impact of airports and possible strategies to manage it. Tutorials will include qualitative and quantitative analysis of problems relevant to airport operations. The course will include a field trip to an airfield.

ZEIT3901  Engineering Research 3A
HPW6

Enrolment in this course is restricted to students in the CDFS programs. Undertake problem-based learning or research project on a nominated topic approved by the course authority in a specific discipline area that is commensurate with study at Year 3 level. As one of the aims of the program is to further develop critical thinking and independent research skills, the project will involve “hands on” research experience in collaboration with a staff member and their research team. A supervisor, who will work closely with the student, will manage each project. Final assessment will be based on a written paper and an oral presentation, with appropriate weighting.

ZEIT3902  Engineering Research 3B
HPW6

Enrolment in this course is restricted to students in the CDFS programs. Undertake problem-based learning or research project on a nominated topic approved by the course authority in a specific discipline area that is commensurate with study at Year 3 level. As one of the aims of the program is to further develop critical thinking and independent research skills, the project will involve “hands on” research experience in collaboration with a staff member and their research team. A supervisor, who will work closely with the student, will manage each project. Final assessment will be based on a written paper and an oral presentation, with appropriate weighting.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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<th>Description</th>
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<tr>
<td>ZEIT4001</td>
<td>Engineering Structures 2</td>
<td>HPW5</td>
<td>This course will provide an introduction to the Finite Element Method (FEM) and analysis. The theory section will consist of the application of the Direct Method, Energy Methods, Variational Methods and Weighted Residual Methods to structural analysis. Matlab will be used to solve simple FEM problems using the Direct Method. The students will be experimenting with modern FEM techniques using ANSYS to solve linear and non-linear structural and heat transfer problems, transient problems and modal analysis.</td>
</tr>
<tr>
<td>ZEIT4002</td>
<td>Sustainability of Concrete Structures</td>
<td>HPW4</td>
<td>This course is designed to demonstrate the role of durability in achieving sustainable concrete structures using real-life examples. Students will learn to apply and analyse the key principles of durability to create innovative sustainable concrete structures. Students will be able to demonstrate the ability to work and communicate efficiently in an engineering project team that aims to create the best sustainable solutions.</td>
</tr>
<tr>
<td>ZEIT4003</td>
<td>Computational Fluid Dynamics</td>
<td>HPW4</td>
<td>This course provides a hands-on introduction to Computational Fluid Dynamics using Matlab and a variety of commercial CFD codes such as Fluent, CFX, or Flowizard. Treatment of different flow regimes such as incompressible/compressible, steady/unsteady, laminar/turbulent is examined. Numerical techniques such as panel methods, finite difference and finite volume methods are developed. Numerical error, stability, convergence, and automatic and manual grid generation strategies are examined in the application of CFD to engineering problems.</td>
</tr>
<tr>
<td>ZEIT4004</td>
<td>Geosynthetics and Ground Improvement</td>
<td>HPW4</td>
<td>This course presents the design and implementation of a range of ground improvement technologies including the use of geosynthetics. It addresses: soft soil engineering; PVD and surcharging; soil reinforcement; geosynthetics; drainage and filtration design using geosynthetics; design of unsealed roads using geosynthetics; reinforced soil wall, reinforced soil slope; reinforced embankment on soft clay; and case histories.</td>
</tr>
<tr>
<td>ZEIT4005</td>
<td>Naval Architecture</td>
<td>HPW5</td>
<td>This course provides an introduction to the principles of naval architecture and ship design. Students will be exposed to a range of vessels and their behaviours. Key topics include ship stability, ship structures and the ship performance. The course will be delivered through a combination of lectures and tutorials.</td>
</tr>
<tr>
<td>ZEIT4006</td>
<td>Structural Integrity Assessment</td>
<td>HPW4</td>
<td>This course provides an overview of structural integrity assessment for Aerospace and Mechanical engineers, starting with an introduction to Non-Destructive Inspection techniques. The traditional NDI techniques employed in the ADF for structural integrity assessment including liquid penetrants, ultrasonics, magnetic particle, radiography and eddy current testing will be covered and some new and emerging health monitoring methods will be introduced. This will be followed by an introduction to Fracture Mechanics and Fatigue and their applications to damage tolerance and durability assessment.</td>
</tr>
<tr>
<td>ZEIT4007</td>
<td>Rotorcraft Engineering</td>
<td>HPW4</td>
<td>Students will be exposed to a number of topics in rotorcraft engineering. Basic helicopter configurations, such as co-axial, tandem and autogiro, are compared. Course starts with actuator disc theory and moves to more sophisticated blade element techniques for both vertical and forward flight. Special cases include autorotation an flight in ground effect. Students are introduced to the use of dimensional analysis to reduce rotorcraft flight test data and standardise test results. Design considerations such as ground resonance, crash worthiness and fatigue safe life will also be discussed. Linearised models of helicopter dynamics are developed proceeding to useful conclusions regarding helicopter stability and flight control.</td>
</tr>
<tr>
<td>ZEIT4008</td>
<td>Integrated Mechanical Design</td>
<td>HPW5</td>
<td>This course consists of a module on road vehicle dynamics and an integrated design module using CATIA. Mastering the use of this package is a required outcome. Individual students will each design one component of the FSAE car, as part of a real design team. Individual designs must be acceptable to the design leaders.</td>
</tr>
<tr>
<td>ZEIT4011</td>
<td>Occasional Elective 1</td>
<td>HPW6</td>
<td>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.</td>
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<tr>
<td>ZEIT4012</td>
<td>Occasional Elective 2</td>
<td>HPW6</td>
<td>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.</td>
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ZEIT4013  Hypersonics and Advanced Propulsion
HPW4
Prerequisite: ZEIT2500, ZEIT2503
This course presents an overview of the important elements of hypersonic aerodynamics and propulsion. It builds upon the foundations of the compressible flow course but concentrates upon those aspects that are specific to flows at speeds greater than Mach 5. The overall purpose of the course is to provide students with the background required to appreciate the current state of hypersonic research and to anticipate future developments in the field. The course assumes that the students have a preliminary knowledge of helicopter aerodynamics. Some computer programming experience in the Matlab environment is highly recommended.

ZEIT4014  Impact Dynamics
HPW4
Impacts (where two or more bodies collide at velocity) are generally undesirable! During a high-velocity collision, structures will bend, materials can fail and people can get hurt. Therefore, understanding the mechanics of impact is important for both civilian and defence communities. In this course we will review how the science of impact has helped us understand ways of making better protective structures. We will also examine the effect that shock waves have on materials and how knowledge of the material failure mechanisms can help us design stronger structures.

ZEIT4101  Computer Science Honours Special Topic 1
UOC12  HPW18
The student will undertake coursework within the School that will inform them on topics that are relevant to the research area in which the student's Honours dissertation will be framed.

ZEIT4102  Computer Science Honours Special Topic 2
HPW9
The student will undertake coursework within the School that will inform them on topics that are relevant to the research area in which the student’s Honours dissertation will be framed.

ZEIT4103  Computer Science Honours Special Topic 3
UOC24  HPW36
The student will undertake coursework within the School that will inform them on topics that are relevant to the research area in which the student’s Honours dissertation will be framed.

ZEIT4104  Computer Science Honours Special Topic 4
HPW9
The student will undertake coursework within the School that will inform them on topics that are relevant to the research area in which the student’s Honours dissertation will be framed.

ZEIT4111  Information Technology Honours Research 1
UOC12  HPW5
The student will undertake a substantial research project on an information technology topic under the supervision of School academic staff.

ZEIT4112  Information Technology Honours Research 2
UOC24  HPW5
The student will undertake a substantial research project on an information technology topic under the supervision of School academic staff.

ZEIT4113  Information Technology Honours Research 3
UOC18  HPW5
The student will undertake a substantial research project on an information technology topic under the supervision of School academic staff.

ZEIT4215  Occasional Option 1: Underwater Communications
HPW5

ZEIT4216  Occasional Option 2
HPW6
The syllabus for this course 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.

ZEIT4217  Occasional Option 3
HPW6
The syllabus for this course 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.

ZEIT4218  Occasional Option 4
HPW6
The syllabus for this course 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.
ZEIT4222 Systems Engineering
HPW3
Systems Engineering provides a framework within which to develop an understanding of the processes and management practices 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).

ZEIT4224 Electrical Power, Machines and Power Electronics
HPW6
Prerequisite: ZEIT1206, ZEIT3215
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. Power Semiconductor Devices; AC to DC converters; DC to DC switch-mode converts. Rotating mmf waves in AC machines, synchronous machines, principles of operation and equivalent circuit, steady-state behaviour; real and reactive power; induction motors - rotating mmf, basic principles of operation, equivalent circuit, torque-speed characteristics. DC to AC inverters; induction motor drives - speed control by varying stator frequency and voltage; variable reluctance and stepper-motor drives; synchronous servomotor drives.

ZEIT4225 Satellite Communications
HPW6
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 calculate digital transmission rates with respect to line codes, intersymbol interference, pulse shaping and equalisation, bit energy-to-noise density and error probabilities.

ZEIT4226 Digital Image Processing and Enhancement
HPW6
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.

ZEIT4227 Radar Techniques and Applications
HPW6
Radar Fundamentals: Range, backscatter, noise, clutter, range equation, radar cross section (RCS). Backscatter characteristics of targets (eg. aircraft, ship and tanks) and clutters (eg. sea, land and rain). Low reflection materials. Radar Systems: CW/FM radar, Doppler, range and frequency resolution. Pulse radar, pulse width, PRF signal spectrum, ambiguities in range/Doppler, pulse integration. MTI radar, non-coherent and coherent detection, matched filter, pulse compression. Imaging radar, range and cross-range resolution, image formation and characteristics, distributed and point targets, inverse imaging, focussed and unfocussed SAR and ISAR system design, airborne/ spaceborne SAR platforms. Data Analysis: noise removal, error correction, feature selection and feature extraction, data fusion and image segmentation, Gaussian maximum likelihood classification. Applications: stationary and moving targets detection, targets recognition, tracking and surveillance, earth resources monitoring.

ZEIT4228 Navigational Systems: Theory and Practice
HPW6
This course examines current navigation systems. Focusing specifically on inertial and GPS sensors it initially explores how these sensors work, and the requirements levied on navigation systems. The course then delves into the techniques that are used to improve navigation performance in the face of noise and bias in several inputs. These techniques employ the class of estimation algorithms known as Kalman filters and extended Kalman filters. The course provides an in-depth introduction into these techniques and is supported by appropriate laboratory and simulation exercises to illustrate the behaviour or application of each system or technique. The course concludes by examining the benefits that estimation techniques provide in real world systems.
ZEIT4230  Electrical Engineering Design Practice
HPW6
Prerequisite: ZEIT3216, ZEIT3218
In this course the knowledge and skills gained in the three Design of Electronic Circuits (DEC) courses and other specialist Electrical Engineering courses throughout the first three years of the Electrical Engineering program are applied to solve a specified electronic system design task. Students work individually and in small groups to design, construct and test various sub-systems, and then integrate these components to produce the final system solution. A strong project management philosophy underpins the engineering approach adopted in this course. The final stage of the course focuses on an evaluation of the design methodology, the completed system's performance as compared to the initial requirements, and a reflection of the overall project experience and lessons learned.

ZEIT4297  Electrical Engineering Project Extension
HPW6
Prerequisite: ZEIT4298. Corequisite: ZEIT4299
This course is an expansion into the second session of your Project-Thesis topic ZEIT4299. The approval of the School is required for enrolment in this course. It extends the amount of time and credit associated with the major research task in the final year of the degree, whereby students who have a suitable project topic and who have shown very good progress in their first session of ZEIT4298 may be invited to expand the scope of their work. As with ZEIT4299, the Project affords the opportunity to take the skills and knowledge from other courses in the degree, and forge a contribution by research and/or development to the discipline. Students can take significant ownership of an expanded body of research, and reflect this to the wider community by presentation and written thesis. Evidence of sufficient progress may be required from time to time.

ZEIT4301  Information Systems Honours Special Topic 1
UOC12 HPW18
The student will undertake coursework within the School that will inform them on topics that are relevant to the research area in which the student's Honours dissertation will be framed.

ZEIT4302  Information Systems Honours Special Topic 2
UOC12 HPW9
The student will undertake coursework within the School that will inform them on topics that are relevant to the research area in which the student's Honours dissertation will be framed.

ZEIT4303  Information Systems Honours Special Topic 3
UOC24 HPW18
The student will undertake coursework within the School that will inform them on topics that are relevant to the research area in which the student's Honours dissertation will be framed.

ZEIT4304  Information Systems Honours Special Topic 4
HPW9
The student will undertake coursework within the School that will inform them on topics that are relevant to the research area in which the student's Honours dissertation will be framed.

ZEIT4401  Operations Research Honours Special Topic 1
UOC12 HPW18
The student will undertake coursework within the School that will inform them on topics that are relevant to the research area in which the student's Honours dissertation will be framed.

ZEIT4402  Operations Research Honours Special Topic 2
HPW9
The student will undertake coursework within the School that will inform them on topics that are relevant to the research area in which the student's Honours dissertation will be framed.

ZEIT4403  Operations Research Honours Special Topic 3
UOC12 HPW5
The student will undertake coursework within the School that will inform them on topics that are relevant to the research area in which the student's Honours dissertation will be framed.

ZEIT4404  Operations Research Honours Special Topic 4
HPW5
The student will undertake coursework within the School that will inform them on topics that are relevant to the research area in which the student's Honours dissertation will be framed.

ZEIT4500  Engineering Project A
HPW5
This is a capstone course in the degree. The Project affords the opportunity to take skills and knowledge from other courses in the degree, and forge a contribution to the student’s discipline by a research investigation, a feasibility study, a design project or a comprehensive literature review and analysis project, chosen from a list of topics approved by the Head of School. Where appropriate, a topic may be of a military nature. Students can take significant ownership of an original piece of work, and reflect this to the wider community by presentations and a written thesis. A staff member is nominated as a supervisor to provide guidance and general supervision. Project management techniques will be adopted and assessed in the implementation of the project. A series of briefings will be used to expose the students to basic research strategies and techniques. Evidence of sufficient progress may be required from time to time.
ZET4501 Engineering Project B
HPW5

This is the second half of a year-long course. Students must also have completed ZET4500 Engineering Project A before being awarded any UOC.

ZET4502 Aircraft and Systems Design 2
HPW5

Prerequisite: ZET4501

Students in Aircraft Design 2 will be introduced to the design of aircraft structures and integration of aircraft systems into an aircraft. The course first develops an understanding and application of aircraft loading actions and the construction of the V-n diagram. The course will then cover the methods of sizing typical aircraft structures. Details of military and civilian aircraft airworthiness and certification requirements, and the associated legal issues in aircraft design, with particular emphasis to structural requirements, are presented by specialist guest lecturers. Basic principles and practices of aircraft systems design and integration will follow. Students will develop their skills in this phase of aircraft design with project work.

ZET4503 Applied Thermodynamics and Propulsion
HPW5

Prerequisite: ZET4502

This course gives students a practical understanding of electrical and mechanical plant. Topics include: 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, electrical power distribution. Mechanical plant: principles of design and machine selection. Mechanical power for electric generators and alternators. Prime movers: water turbines; constant-speed drives. Heating, ventilation and air conditioning plant: water-handling and air-handling plant; environmental control. Lifting and carrying plant: cranes, gantries, forklift and straddle trucks; surface and air vehicles for heavy transport. Manufacturing plant: processing of raw materials through to assembly of finished products.

ZET4600 Civil Design Practice
HPW5

Prerequisite: ZET3504

Students in Aircraft Design 2 will be introduced to the design of aircraft structures and integration of aircraft systems into an aircraft. The course first develops an understanding and application of aircraft loading actions and the construction of the V-n diagram. The course will then cover the methods of sizing typical aircraft structures. Details of military and civilian aircraft airworthiness and certification requirements, and the associated legal issues in aircraft design, with particular emphasis to structural requirements, are presented by specialist guest lecturers. Basic principles and practices of aircraft systems design and integration will follow. Students will develop their skills in this phase of aircraft design with project work.

ZET4505 Mechanical and Aeronautical Engineering Management
HPW5

This course covers engineering management activities and the engineer’s professional responsibilities, during development, acquisition and sustainment of aeronautical and mechanical hardware systems. The engineer’s role in a project team, scope development, task and schedule management, resource planning, procurement and financial management are explored through practical exposure to developing work breakdown structures, sequencing of tasks, scheduling resources and quality and risk management. Sustaining hardware in service is addressed through use of technical integrity based maintenance management techniques including maintenance strategies, repair or replacement decision making, condition monitoring and technical management information systems. Learning areas are reinforced by participation in a product life cycle team project and analysis of in-service maintenance case studies.

ZET4504 Electrical and Mechanical Plant
HPW6

Prerequisite: ZET4503

Thermodynamic analysis is used to examine a range of power cycles including internal combustion engines and gas turbines. Different levels of analysis will be used including air-standard and cold-air-standard. The thermodynamics of gaseous combustion processes will be explored. The majority of the course will apply these analysis techniques to the gas turbine cycle, and its range of applications including aircraft and marine propulsion and power generation.

ZET4600 Civil Design Practice
HPW5

Prerequisite: ZET3504

This course gives students a practical understanding of electrical and mechanical plant. Topics include: 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, electrical power distribution. Mechanical plant: principles of design and machine selection. Mechanical power for electric generators and alternators. Prime movers: water turbines; constant-speed drives. Heating, ventilation and air conditioning plant: water-handling and air-handling plant; environmental control. Lifting and carrying plant: cranes, gantries, forklift and straddle trucks; surface and air vehicles for heavy transport. Manufacturing plant: processing of raw materials through to assembly of finished products.
Scrutiny of the Bachelor of Civil Engineering (Hons) reveals that it is currently highly focussed on engineering science and technical courses with limited integration of topics in comparison with real world practice. Engineers today must constantly deal with regulatory uncertainty, data limitations, and evolving methodologies, as well as a range of conflicting demands and opinions from clients, governments, public authorities and the community. Consequently, they need to understand (and be able to apply) sound engineering principles to the projects they undertake. These principles involve technical competence, ethical practice, appropriate management, professionalism, courtesy, safety awareness and thoroughness of task execution. Relevant skills include (but are not limited to) problem solving expertise, proficiency in liaison and negotiation (with both professional bodies and individuals), research and report preparation competence, and good communication ability. In addition, engineers must be able to cope with continual technological and organisational change in the workplace and the commercial realities of industry practice.

They should also be generally aware of the legal and environmental consequences of their professional actions, and exhibit a commitment to ongoing learning and contributions to their organization, profession, and the community. In order therefore to facilitate the transition of the final year students and prepare them for the tasks they will likely face once they join their respective services, an Integrated Design Platform course (6 UOC) is offered as an alternative to final year thesis work for qualifying students who wish to undertake it. The course is a project based learning (PBL) option, and aims to enhance the process of learning through authentic problem solving. Students pursuing this course will be required to work in teams and to attend seminars and possible occasional field visits external to timetabled course sessions, during both semesters. These may include both professional meetings and leadership seminars. Scheduled session contact is 5 hours per week, but up to a further 8 hours per week of additional designated consultation periods for individuals or groups will normally be available at flexible times to be advised and agreed to during the sessions.

This course starts by introducing and discussing concepts and methods of reinforced concrete design. Students will learn how to analyse and design rectangular and flanged reinforced concrete beams. The acquired skills will be used by the students to design one-way slabs. Deflections of beams and one-way slabs will be analysed and designed for. The skills developed at this stage enable students to learn correct detailing and presentation of their design work. Students will then learn the philosophy and methods of design of two-way reinforced concrete slabs which includes designing for punching shear in flat plates and flat slabs. Students will then be introduced to the design of short and slender reinforced concrete columns and will develop the capacity to design columns for a axial and biaxial effects. This part naturally concludes with principles and methods used in designing reinforced concrete footings. Prestressed concrete will be introduced to the extent of familiarising students with its concepts through simple design examples.
This course is offered to Final year Civil Engineering students. The course is largely research focused. It deals with the most important factors that affect durability of concrete and offers the participants the opportunity to deeply understand the chemical and physical processes that accompany concrete development and the mechanisms that may result in its deterioration. Students are required to produce individually authored reports and present a scientific talk on their work. The course will be run using lectures, seminars and workshop style discussions. Students are expected to further employ the knowledge and experience that they gain from this course, in their future design solutions and publications as well as enhancing their research skills and reporting competency.

**ZEIT4700 Mechanical Design 2**  
**Prerequisite: ZEIT3700**  
The course will involve the application of engineering knowledge and methods to the design of complete machines. The course will be delivered as a blend of lectures, tutorials and studio based design activity with individual and group activities.

**ZEIT4702 Instrumentation**  
**Prerequisite: ZEIT1502**  
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.

**ZEIT4703 Land Mobility and Weapons**  
**Prerequisite: ZEIT1502**  
This course provides an introduction to the principles of military land mobility and the impact of weapons on these platforms. Students will be exposed to a range of issues including general design requirements, terramechanics, mobility, counter mobility, reliability, vulnerability and survivability. The course will be delivered through a combination of lectures and tutorials.

**ZEIT4704 Land Vehicles**  
**Prerequisite: ZEIT1502**  
This course following on from Land Mobility and Weapons provides an analytical foundation for Land Vehicle Design. Students will be exposed to a range of issues including propulsion choices and vehicle dynamics. The course will be delivered through a combination of lectures and tutorials.
ZEN2402  Engineering Research 4B
UOC12  HPW12
Prerequisite: CDF Program
Students will undertake a problem-based learning project of scope commensurate with the level of attainment expected of a final-year Electrical Engineering student in the CDF Students Program. The project will be a form of a piece of research or investigation, or a feasibility study or design chosen from a list of topics selected or approved by the Head of School.
In each case at least one staff member will be nominated as a supervisor to provide guidance and general supervision during the project. Students will be assessed through their seminar presentations, attended by other students and members of staff, and the project thesis. Evidence of sufficient progress may be required from time to time. The thesis, which will have a nominal length of 20,000 words, is to be presented not later than the first day of the examination period. Theses must be presented both typed and suitably bound and in electronic form.
ZEN2215  Law, Force and Legitimacy
School of Humanities and Social Sciences
HPW3
The course will provide a detailed overview of international humanitarian law, and the legal obligations it imposes on states and armed forces prior to and during conflict. It provides a detailed introduction to the historical development of international humanitarian law, its key obligations, and the debate surrounding its creation. It then surveys a series of related ethical, legal and operational challenges raised by new forms of conflict and military operations including counterinsurgency and counter-terrorism, stability and reconstruction operations, humanitarian interventions and complex emergencies, conventional war-fighting, and air operations. Rather than narrowly treating ethical issues in terms of legal obligations, it explores how ethical questions have become central to strategic success.
ZEN2222  Introduction to Strategic Studies
School of Humanities and Social Sciences
HPW3
Prerequisite: 36 Units of Credit in Level 1 courses
Strategy may be defined as the means by which states and other organised groups use force or the threat of force to achieve 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, guerrilla 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.
ZEN2240  Introduction to Military Ethics
School of Humanities and Social Sciences
HPW3
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.
ZEN2801  Strategy, Management and Leadership
School of Business
HPW3
This course explores the ways that organisations set their strategic objectives (strategy), organise themselves to achieve those objectives (management) and secure the willing support of people who can effect mission accomplishment (leadership). During their careers, ADF officers can expect to play important roles in the management of Defence, but they will also have to interact with business firms, government departments and volunteer organisations. This multi-sector ‘mini-MBA’ course prepares them for doing so, by developing a broad understanding of strategy, management and leadership in military, business, government and volunteer organisations.
ZEN1101  English 1A: Literary Studies
HPW3
This course is designed to develop the critical thinking and writing skills needed to study English at university. We will read material from a range of written and audiovisual material. We will consider, in particular, the way that language and metaphor influences our understanding of the world.
ZEN1102  English 1B: Literature and Power
HPW3
Writers have always addressed political issues, from supporting or resisting revolution, to analysing the ethics of war or the sophistries of diplomatic language, to attacking the class politics of industrialisation, the exploitative dimensions of empire, sexual inequalities, prejudice and domestic violence. Literature has also drawn attention to the nexus between power and language: the ways in which language masks ideology, normalises inequality and stifles dissent. This course is designed to spotlight a series of central political issues with which writers have engaged from the Renaissance to the present.
ZEN1201  History 1A: Birth of the Modern World I
HPW3
Want to know where our modern world came from? This course will give you an understanding of the forces that formed the world we know. Though the eyes of those who experienced them, we will examine interactions of religion, politics, economics and culture across the medieval and early modern world, and the development of warfare as a political, social and cultural phenomenon in the early modern period. This course is also designed to give you the academic skills that will prepare you for upper level courses and the intellectual demands of your military career.
Indonesian 1C is an intermediate level course intended for students with a pass in year 12 Indonesian or its equivalent. Indonesian 1C is strategically important for Australian security. Indonesia is one of the closest neighbouring countries with the largest Muslim population in the world. Indonesia has become one of the influential regional powers in our region. Understanding Indonesian society and the language is strategically important for Australian security. This course offers the first session of elementary Indonesian language to understand the Indonesian society and culture. You will gain understanding of important values in Indonesian society. No prior Indonesian language knowledge is required to enrol in this course.

Prerequisite: ZHSS1301

Indonesian 1B

This is the second session of the Indonesian language and culture course to further develop your competence in the Indonesian language acquisition and cultural understanding of Indonesian society. You will gain understanding of the important processes and social structure which are vital in contemporary Indonesian society. Students are expected to conduct a simple conversation in Indonesian related to daily activities.

Prerequisite: ZHSS1301

Indonesian 1C

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.

Prerequisite: ZHSS1303

Indonesian 1D

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.

Prerequisite: ZHSS1303

International and Political Studies 1A: Ideals, Interests and Power

Ideals, Interests and Power are central concerns in the study of Politics. This course offers you the opportunity to gain insights into these concerns. You will learn to think critically about power: what is it, and how is it allocated? How do people and countries struggle for it? What values motivate them? What are national interests? How are these interests pursued domestically and in the international arena? How ought we to organise our collective lives? You will be exposed to the disciplines best answers to these and other questions. This course draws on Australian and international examples to help you gain an overview of who gets what, when and how the fundamental questions of International and Political Studies. Students are not required to have any specific background qualifications in International and Political Studies.

Prerequisite: ZHSS1101 and ZHSS1102

Studies in the Media

The media reporting of war today plays a pivotal role in how war is waged and understood. This course examines the history of media reporting of war and the various theories and practices of the communication of war from the nineteenth to the twenty-first century. The course will consist of selected theoretical readings that focus on various elements of the media reportage of war and its media forms, including the role of the journalist, the witness, propaganda, memory, truth, images, film and humanitarianism.

Prerequisite: ZHSS1101 and ZHSS1102

Dream and Disillusionment: American Literature

This course is designed to familiarise students with some of the most significant and influential authors and works of American literature. The question of what it means to be 'an American' will be explored from a range of perspectives, against a background of the history, culture and politics of the United States from white settlement to the present.
ZHSS2120  Heroism, Banditry and Manhood in Popular Culture  
HPW3  
Prerequisite: ZHSS1101 and ZHSS1102  
Rebellion against the status quo normally gives way to conventionality and domesticity. But what happens when it doesn’t? Popular culture is full of such cases; but why? This course looks historically at the problem via imaginative explorations of bandits, outlaws and antiheroes from the nineteenth to early twenty-first centuries, with a particular focus on contemporary film. It examines how stories of rebellion reveal crises in our understanding of conflict, politics, and, in particular, concepts of manhood. The course will normally include Australian texts in order to ground this thematic in local conditions.

ZHSS2133  Another Country: Australian Literature  
HPW3  
Prerequisite: ZHSS1101 and ZHSS1102  
Writing in Australia has always provided a compelling forum for social anxieties and ongoing crises in a fragile national identity. This unit explores the relation between Australian society and the forms of culture it has produced, examining novels, poetry, short stories, theatre and film from 1900 to the present. ‘Literature’ is broadly conceived through its functions as social critique or social ‘settlement’.

ZHSS2201  East Asia: Between Tradition and Modernity  
HPW3  
Prerequisite: ZHSS1201 and 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.

ZHSS2204  Rise of Modern Navies and Sea Power  
HPW3  
Prerequisite: ZHSS1201 and 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.

ZHSS2209  The Making of Contemporary Society  
HPW3  
Prerequisite: ZHSS1201 and 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  
HPW3  
Prerequisite: ZHSS1201 and ZHSS1202  
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.

ZHSS2217  Genocide: Crime of Crimes  
HPW3  
Prerequisite: ZHSS1201 and ZHSS1202  
Genocide is known as the crime of crimes. This course gives students an understanding of the history of genocide in the modern world from the early twentieth century to the present. Students explore the origins of the concept and its definition in humanitarian law (the UN Convention). The course compares several case studies to examine various themes: the changing face of genocide; motivation of perpetrators; moral dilemmas of victims and bystanders; the link with war and ideology; and how intervention, prevention and punishment challenge the international community. Students engage with many primary sources and interdisciplinary debates in a rich scholarship.

ZHSS2221  Ireland and Britain: 1798-1998  
HPW3  
Prerequisite: ZHSS1201 and ZHSS1202  
This course examines conflicts over nationality and identity in Ireland since 1798. After identifying the historical basis of the conflicts between Ireland’s divergent religious, national, cultural and political traditions, we will examine the development of the conflicts from the United Irish rebellion of 1798 to the Good Friday Agreement 200 years later, which appears to have laid the basis for a lasting peace.

Throughout, we will focus on the changing relationship between politics and violence in the conduct of these conflicts. In doing so we will encounter some of the key themes of modern history, including relationships between religion, nationality and identity; colonialism and post-colonialism; terrorism and counter-terrorism; economic development and under-development; and the role of the international community in the internal affairs of sovereign states.
This course studies the rise of the state of Prussia from the 18th century, the formation, development and destruction of the German Empire from 1871 to 1918, and the creation and failure of Germany’s first republic (the Weimar Republic). It will study the growth and influence of German military, political, economic and cultural power, and examine the role of this period in the long-term causes of Nazism.

This course explores Russia’s dramatic history from medieval to contemporary times. It features fearsome leaders from Ivan the Terrible to Stalin and reformers from Peter the Great to Gorbachev. Thematically, it examines the centrality of war, geopolitics, and revolution in Russia’s history. As a case study of geopolitics in action, the course investigates the dangerous “Great Game” played between Russia and other Great Powers for dominance in Central Asia. The Revolution of October 1917 ushered in Lenin’s utopian socialist experiment. Stalin’s collectivisation, forced industrialisation and the purges, however, destroyed the economy utopian dreams. For all its flaws, the USSR still played the critical role in defeating Hitler in World War 2. Studying Russia’s history provides important clues for understanding the challenges Russia faces today in a new geopolitical scenario.

This course is an introductory survey to the history of contemporary Africa. It studies the main historical forces that have shaped African lives over the last two centuries. It uses specific country case studies to develop students’ knowledge of the region. It will examine the major epochs of colonialism, decolonization and post-colonial independence, combining chronological and conceptual approaches. It will give students an understanding of the key themes of modern African history including the role and nature of the state in Africa; national identity, ethnicity and religion; economic development and underdevelopment; nation building and ‘failed states’; national sovereignty and international interference. It will give students an understanding of the complex historical background to contemporary crises and conflicts in Africa.

Civil wars are inherently complex and hard to define, spanning wars of national liberation, insurgency, and succession as well as political and social violence involving non-state actors in weak, fragile or failed states. The real determinants of violence are often overlapping, including ethnic and religious division, economic inequalities, class, social or political exclusion, and competition for scarce natural resources. Drawing on a selection of case studies from different historical periods and regions, this course investigates the dynamics and drivers of civil wars, the course and conduct of particular conflicts including the strategies used by armed factions to sustain conflict, and their localised and international impact.
CHINAS current domestic politics and foreign relations.

This course aims to introduce students to the politics and economy, has the largest standing army in the world, and is an increasingly consequential power in international affairs. Whatever developments occur in Chinese politics are bound to affect Australia along with the whole Asia-Pacific region. 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 processes 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.

ZHSS2423 Key Political Thinkers
HPW3
Prerequisite: ZHSS1401 and ZHSS1402

What is a good life? How should human relations be structured and managed? How do we live together with others? When and how is the use of power justified? These fundamental questions of how human relations should be structured and managed have a long and important history, and continue to engage people today in the quest to overcome authoritarianism and tyranny. By focusing on some of the most important and influential political thinkers over the last two and a half millennia, this course will examine how they both introduced and addressed the fundamental questions of politics. We will see how these thinkers not only have an enduring legacy in the fields of domestic politics, security and international relations, but also how they have helped shape our view of the world today.
ZHSS2424  The Application of Air Power  
HPW3  
Prerequisite: ZHSS1401 and ZHSS1402  
In the history of organised conflict, the use of air power is a relatively recent development. Nevertheless, air power has proved to be a major element of conflicts over the past seven decades, and has now become a critical part of the national security strategies of many states. This course will examine the changing roles of air power in 20th century wars, the place of air power in achieving military and national strategic objectives, and the challenges of applying air power in current and future conflicts, especially those where force may not be the deciding factor.

ZHSS2427  Politics of the Great Powers  
HPW3  
Prerequisites: ZHSS1201 and ZHSS1202 or ZHSS1401 and ZHSS1402  
This course studies the role of great powers - established and emerging powers - in shaping regional and world orders. The policies and strategies of great powers are examined as are the interactions between them. Attention is given to the theory and history of great power behaviour, the distinction between ‘hard’ and ‘soft’ conceptions of power, and the key issues confronting the great powers in contemporary global politics. The following themes and questions will be explored throughout the course: What role have great powers played in maintaining or destabilising order and justice in international society? What do we mean by ‘power’ and what makes one ‘great’; is it military strength, economic strength, or something more? How should great powers behave? What ought to be the rights and responsibilities of great powers?

ZHSS2428  The Great Clashes that Define Us: Ideology in Australia  
HPW5  
This course introduces students to the great controversies of Australian politics. It will give you the opportunity to understand the debates, the history, and to decide where you stand. The course introduces the big debates through a historical approach. Most of the key divisions in Australian politics have evolved over many years. Whether we are debating democracy, the beliefs of the major parties, economic equality, free markets, unions, race, multiculturalism or feminism, there is a long history. We start at Federation and we follow the debates through, watching how they evolve to the current day.

This allows you to follow the big personalities, the big issues and the big ideas through time. The course also takes a theory approach, introducing you to the major schools of western political thought that have driven these debates. It gives you an overview of the major schools of political theory and explains how they developed in response to practical politics. It allows you to compare these different schools of thought, explore the ideas in their real life context, and learn how the ideas played out in practice when reforms were rolled out in Australia.

ZHSS2503  State Systems in Pre-Colonial Southeast Asia  
HPW3  
Any two of ZHSS1201, ZHSS1202, ZHSS1301, ZHSS1302, 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, e.g. tribes, with a particular focus on the Malay peninsula and Indonesian archipelago. This course may be taken as part of a major in International and Political Studies. It may be taken as part of a major in History with the permission of the Head of School.

ZHSS2504  Popular Culture in Indonesia  
HPW3  
Prerequisites: ZHSS1102 or ZHSS1202 or ZHSS1302 or ZHSS1304 or ZHSS1401 or ZPEM1202  
This course covers Indonesian popular culture such as literature, independent film and sinetron soap opera, as well as other Asian popular genres that are influential in Indonesia, such as Indian Bollywood films, Japanese manga comics and Hong Kong martial art movies. It will analyse the role of these genres as commercial commodities, works of popular art, and mediators of historical events and identities. Themes include the Indonesian media business; the circulation of foreign Asian pop culture in Indonesia; the mediation of daily life, politics, gender, religion and ethnicity; and critiques of and alternatives to the pop culture industry. The course will demonstrate both the potential of and limits to popular culture for promoting and representing various aspects of Indonesian civil society. Indonesian major students will be required to read some materials in Indonesian.

ZHSS2506  Development Policy & Social Contexts in Indonesia  
HPW3  
Pre: Any 2 of ZHSS1102, ZHSS1202, ZHSS1302, ZHSS1304, ZHSS1402, ZPEM1202.  
Due to steady economic growth, Indonesia has successfully grown to become a lower middle income country and a regional power in Southeast Asia. However, Indonesia was created out of anti-colonial nationalism and the fragile territorial boundaries and the artificial sense of belonging have led to the implementation of centralistic government policies for more than half a century. As a result a various socio-political tension has come into existence in contemporary Indonesian society, resulting in social exclusion and marginalisation. This course will critically analyse socio-economic development policies such as urbanisation, environmental management, public health and poverty reduction and nationalism in Indonesia. Students will gain an understanding of causes of the socio-political tension and its impact in contemporary Indonesian society.
Constant changes in both the global environment in the 21st Century and the expectations placed upon the military combine to make new and increasingly complex ethical demands upon officers of the Australian Defence Force. This course introduces students to ethical theory and debate with reference to various issues they will face as future officers in the military and as citizens of Australia. Topics to be discussed in the course will be selected by the students and may include discussion of topics such as cloning, euthanasia, the environment, global poverty, terrorism, capital punishment, privacy and ethical issues in counter-terrorism.

ZHSS2601 Introductory Business Ethics
HPW3
Business managers in the modern, global economy are routinely faced with challenging ethical issues. Do managers that sacrifice profits for the sake of mitigating social and environmental problems breach the trust of the shareholders that they have been appointed to serve? What are the moral requirements that marketing campaigns must adhere to? What rights do employees hold against their employers? Under what circumstances is it ethically appropriate to file for bankruptcy? Is it permissible to use bribery in cultures and markets where it normal and widely accepted? To what extent should free and voluntary commercial exchanges be coercively regulated by the state? In answering such questions, the law often provides little guidance. Students enrolled in Introductory Business Ethics will learn to apply traditional ethical theories and principles to modern-day business decisions in a wide range of contexts.

ZHSS2901 Humanities & Social Sciences Special Topic 1
HPW3
This course is designed to offer students enrolled in the BA (CDF) an understanding of what is involved in the Humanities and Social Sciences, building upon what they will have learned in their first year of study. The course will be structured as a cross-disciplinary seminar, to introduce ideas and methodologies in a manner which will complement and expand upon the student's studies in other HASS courses.

ZHSS2902 Humanities and Social Sciences Research Project 1
HPW2
Students will undertake a research project on a nominated topic in a specific discipline area commensurate with their year of study. As one of the aims of the program is to further develop critical thinking and independent research skills, the project will involve "hands-on" research experience in collaboration with a staff member or their research team. A supervisor, who will work closely with the student, will manage each project. The research project will be chosen after discussion between the student and the supervisor. Students will be expected to present a short introductory seminar on the topic by week 4 of Session. Final assessment will be based on a written paper and an oral presentation.

ZHSS2600 Practical Ethics for the 21st Century
HPW3
Prerequisite: Any 2 of ZHSS1201, ZHSS1202, ZHSS1301, ZHSS1302, ZHSS1401, ZHSS1402, ZBUS1101, ZBUS1103 or ZGEN2240 with Head of School consent.

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.

ZHSS3138 War Literature and Film
HPW3
Prerequisite: ZHSS1101 and ZHSS1102

This course is a study of selected war literature (prose, poetry, personal memoir) and some film texts, and examines such concepts as mateship and masculinity, representations of the soldier and the enemy, violence and pain, and the ideological function of works about war.

ZHSS3140 Literatures of the World
HPW3
Prerequisite: ZHSS1101 and ZHSS1102

This course examines writing in English or in English translation from the formerly colonised nations of the world. It explores the rich literature generated by a confrontations with political and global forces, and the influence of more than one literary tradition on the formation of texts. The course examines literature, film and popular culture, within the context of local histories, politics and cultural patterns.

ZHSS3202 Preliminary Honours History: Methodology, Research and Writing
HPW2
Prerequisite: 24 units of credit in upper-level History passed at Credit level or higher; Corequisite: 6 units of credit in upper-level History.

This 6 UOC course is based on the development and completion of an individual research project. The student will select the project in conjunction with me and develop it through various stages of a proposal to submission of a research essay at the end of the session. In addition, weekly course work will explore historical method and sources.

ZHSS3211 The Second World War
HPW3
Prerequisite: ZHSS1201 and ZHSS1202

This course will give the student an understanding of the greatest global conflict in history through the analysis of the military, social, political, economic, ideological and moral issues that shaped it. Students will study the strategic decisions, the major air, sea and land campaigns and the key turning points of the military struggle. The course also examines the impact of the war and mobilization on the home fronts, raising questions of leadership, morale and social change. Students will study life under foreign occupation and the difficulties this imposed on the defeated. The study of the Second World War raises many moral issues: amongst them, the barbarisation of warfare, the Final Solution; the choices of resistance and collaboration; the dropping of the first atomic bomb; and the trials and punishment at the end of the war. Students will examine different historical interpretations of these issues and engage in the arguments surrounding them.
ZHSS3212  Australian Military History 1788 to the Present
HPW3
Prerequisite: ZHSS1201 and 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.

ZHSS3228  Insurgency/Counterinsurgency
HPW3
Prerequisite: ZHSS1201 and ZHSS1202
Insurgency is a form of warfare as old as war itself, and insurgencies and their countering provide some of the most difficult challenges in the current strategic and operational environments. This course provides an introduction to insurgencies across time and place, and will introduce students as well to the theoretical literature of both insurgency and guerrilla warfare, and of counterinsurgency and counter-revolutionary warfare. It will conclude with consideration of the complex environments created by what some have described as a ‘global insurgency’ waged by extremist jihadism against the West.

ZHSS3231  First World War
HPW3
Prerequisite: ZHSS1201 or ZHSS1202 or with Head of School approval
This course considers the First World War as the first global war of the Twentieth Century. It will develop students’ knowledge of this conflict by examining the causes of the war, the major military theatres of operations, the social and economic mobilization of civil society, issues of loyalty and dissent, the relationships between the major alliance partners, and the effects of the war in Europe and in the rest of the world. Students will also analyse how the First World War has been variously remembered or forgotten in the nations that fought it. This course will give students an understanding how major conflicts can be catalysts for change for states, societies and individuals.

ZHSS3233  Naval History and Sea Power in the Twentieth Century
HPW3
Prerequisite: ZHSS1201 and 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.

ZHSS3234  Nazi Germany 1933-45
HPW3
Prerequisite: Either ZHSS1201 or ZHSS1202, or both ZHSS1401 and ZHSS1402
This course examines the creation and destruction of the Nazi dictatorship in the broader context of Nazism significance for twentieth century history. It traces the nature of National Socialism as an ideology and a system of rule.

ZHSS3236  After the Empire: the United Kingdom since 1945
HPW3
Every aspect of British history since the second world has been shaped by its global connections. From its involvement in colonial and postcolonial conflicts in Africa, Asia and the South Atlantic to its key role in NATO and attempts to define a â€œspecial relationship with the USA, from its decline and rebirth as a global financial centre to its role in the global financial crisis of 2008, from its absorption of large immigrant populations from its former colonial possessions to its troubled membership of the European Union, from its eager consumption of American popular music to its unique contribution to the global development of rock, the United Kingdom since 1945 has been defined by its situation as a declining imperial power in a globalising world, a decline so profound that England must seriously contemplate the prospect of losing its centuries-old dominion in the British Isles. In this course we will examine British politics, society, economy and culture through the lens of Britains deep and changing engagement with the wider world, considering phenomena as diverse as wars, Beatlemania, currency crises, the rise and fall of the postwar welfare state, nationalist movements in Northern Ireland, Scotland and Wales, and the transformation of British eating habits. We will also examine British people’s reflections on their country’s changing place in the world, and in particular their use of history to account for the underlying causes of postwar ‘decline’.

ZHSS3301  Indonesian 3A
HPW3
Prerequisite: ZHSS2302
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.

ZHSS3302  Indonesian 3B
HPW3
Prerequisite: 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.
ZHSS3402 Political Cultures in Asia and the Pacific  
Prerequisite: ZHSS1401 and ZHSS1402  
This course introduces students to the study 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 International and Political Studies course may be taken as part of the Indonesian-Malay studies minor.

ZHSS3414 Regional Security Issues  
Prerequisite: ZHSS1401 and ZHSS1402  
The regional security environment is rapidly changing. This course examines the key elements shaping the Asia-Pacific security environment in the early 21st century. It will consider the nature and dynamics of a range of contemporary security challenges facing the region, the capacity of regional security structures to manage these challenges, and the influence of major regional powers on the evolving regional order. Particular attention is given to analyzing regional security flashpoints and to emerging non-traditional threats to security in the era of globalisation. The impact of key developments in regional security on Australia’s national interests will also be examined.

ZHSS3417 Ethnic Conflict and World Politics  
Prerequisite: ZHSS1401 and ZHSS1402  
This course introduces students to the study of ethnic conflict as a major challenge in contemporary world politics. It develops analytical skills in assessing the political dynamics of conflict management, resolution and reconciliation of specific case studies. 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 led 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.

ZHSS3421 Topics in Political Philosophy  
Prerequisite: ZHSS1401, ZHSS1402 or ZHSS2600  
The ideals of freedom, equality, and justice are commonly invoked. But what does it actually mean to be free? Or to be equal? Or to live in a just society? This course will examine these and other fundamental questions of political philosophy using both contemporary and historical thinkers. Topics to be addressed include: justifications for the existence of the state, political obligation and civil disobedience, freedom, private property, equality and justice, and whether we have obligations to those who live in other societies.

ZHSS3422 Politics of Globalisation  
Prerequisite: ZHSS1401 and ZHSS1402  
This course is an in-depth exploration of the phenomenon of globalisation. It covers the good, the bad, and the ugly. It surveys the idea of globalisation from a wide range of perspectives and evaluates its diverse impacts. It considers the significance of globalisation and weighs its appropriate place in global history. It addresses the globalisation of ideas and ideology, politics and culture, society and economy, and issues of global governance. The experiences of globalisation are explored from a variety of levels across time and space, from the individual to the local, the national to the international.

ZHSS3425 Air Power in Small and Irregular Wars  
Prerequisite: ZHSS1401 and ZHSS1402  
Almost from the inception of powered flight, Western states have found air power to be an especially useful means of dealing with irregular forces. Whether quelling rebellious tribes in far-flung colonies or pursuing bandits across border regions, air power in its many forms has been an important component of irregular warfare. In this course our underlying concern is to explore the use of force in the international environment, particularly its use by states against non-state actors. The context for this examination is the use of air power in small, irregular and unconventional wars, since 1917. Wars against bandits, rebels, insurgents, terrorists and guerrillas. The course will investigate the historic use of air power through colonial and post-colonial settings to consider finally the challenges such wars pose for the employment of air power today. This course may be taken as an IPS or a History unit at stage 2 or stage 3.

ZHSS3431 The Politics of International Human Rights  
Prerequisite: ZHSS1401 and ZHSS1402  
This course examines the political struggle to define and implement international human rights norms, which protect people against abusive states and support international peace and stability. The first part describes the evolution of the international human rights regime since the traumatic events of the Second World War and the major controversies that have shaped it. The second part examines the continuing gap between states, human rights commitments and practices. The third part evaluates ongoing international efforts to close that gap and considers alternative ways forward. The course mixes broad comparative discussions with in-depth case studies to help bring the issues to life. Students are given the opportunity through tutorial discussions and course assessments to focus on countries that they might have a particular interest in.
ZHSS33434 Australia: Who really holds power? HPW3
This course seeks to give students a hands on applied understanding of how Australian government decision making really works. This course takes an innovative approach to teaching this subject matter. Students will be required to choose an issue they care about as a case study, and then track that issue through the government decision making process.
Each week students will be introduced to a new element of the government system and the power plays at work as different actors seek to influence the outcome. They will then have the opportunity to apply this knowledge, by researching how their issue played out at this step of the decision making process, who tried to influence the decision and who prevailed. At the end of the semester students will have intimate knowledge of their own case study, they will also have been exposed to more than a dozen other case studies. Students will gain a rich and applied sense of how the Australian government works in practice.

ZHSS3435 Contemporary Security Studies HPW3
Prerequisite: ZHSS1401 and ZHSS1402
This course is designed to introduce students to contemporary security studies through a critical exploration of theory and practice. 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. Contemporary security studies challenges both assumptions. The course evaluates debates between conventional and critical security studies by exploring how security is an essentially contested concept and examining this proposition in terms of the importance of non-military issues and non-state actors. The main schools of thought are reviewed to develop conceptual tools that will be used to analyse a range of non-traditional security issues such as energy security, environmental security, ethnic conflict and health security. This is followed by a survey of non-state actors such as private security companies, non-governmental organisations, robotics and multinational corporations. Students completing this course will develop their analytical skills required for understanding complex security dynamics.

ZHSS3501 Islam and Challenges of Modernity HPW4
Pre: Any 2 of ZHSS1102, ZHSS1202, ZHSS1302, ZHSS1304, ZHSS1402, ZPEM1202.
Contrary to the prediction of modernisation theory, Islam is a fast-growing religion in the world. Understanding of Islam and Muslim politics is increasingly becoming important for professional life of our graduates. This course examines challenges faced by Muslim communities around the world with a focus on Indonesia, the largest Muslim population country in the world. It introduces fundamental knowledge of Muslim religious beliefs and practices, and their historical development. It also explores the relations between Muslim communities and the state, and examines the challenging contexts in which Muslims have been placed to negotiate their identity and Islamic ideas.

ZHSS3505 Class and Gender in Indonesia HPW3
Pre: Any 2 of ZHSS1102, ZHSS1202, ZHSS1302, ZHSS1304, ZHSS1402, ZPEM1202.
In past Indonesian state ideology, women were predominantly confirmed in their roles as loyal companions to their husbands, educators and guides for their children, and procreators for the nation. In reality, women's contribution to Indonesian society has been in much wider fields and more diverse roles.
This course will analyse women's thoughts about and experiences in both mainstream and alternative categories of marriage, family life and sexuality; politics, professional work and the informal sector; and culture, art and media representation. The course will identify class as one of the key factors determining the social conditions of individual Indonesian women and men. Indonesian major students will be required to read some Indonesian materials in this course.

ZHSS4001 Arts Honours Research 1 HPW2
This course is intended for students undertaking the BA (Hons) program. It involves the initial preparatory work for the production of a dissertation of up to 18,000 words.

ZHSS4002 Arts Honours Research 2 UOC24 HPW2
This course is the final component of the Honours dissertation. It consists of a thesis of no more than 18,000 words. Students will also be expected to present a brief oral report on their thesis progress during this semester. The project will supervised by one or more members of academic staff.

ZHSS4003 Arts Honours Special Topic 1 UOC9 HPW2
This course is intended for students undertaking the BA (Hons) program. It involves study at advanced level of key concepts and thinkers in the Humanities and the Social Sciences. Depending on demand and the nature of student enrollments in the degree, the course will be tailored to particular disciplinary needs, in that it may have a particular English and Media Studies, History or International and Political Studies focus or may be more broadly interdisciplinary in its focus.

ZHSS4004 Arts Honours Special Topic 2 UOC9 HPW2
This course is intended for students undertaking the BA (Hons) program. It involves study at advanced level of key concepts and thinkers in the Humanities and the Social Sciences. Depending on demand and the nature of student enrollments in the degree, the course will be tailored to particular disciplinary needs, in that it may have a particular English and Media Studies, History or International and Political Studies focus or may be more broadly interdisciplinary in its focus.
This is a page from a document titled "Guide to Undergraduate Studies 2016". The page contains information about various courses offered at UNSW Canberra at the Australian Defence Force Academy. The courses are listed with code numbers and brief descriptions. Here is a sample of the course descriptions:

- **ZHSS4005** History Honours Research 1
  - This course is intended for History students undertaking the BA (Hons) program. It involves focused research for the production of a dissertation of up to 18,000 words. Admission to Honours in History is at the discretion of the Head of School.

- **ZHSS4006** History Honours Research 2
  - This course is intended for History students undertaking the BA (Hons) program. It involves the completion of a dissertation of up to 18,000 words. Admission to Honours in History is at the discretion of the Head of School.

- **ZHSS4007** History Honours Special Topic 1
  - This course is intended for History students undertaking the BA (Hons) program. It involves advanced coursework to be determined by the Head of School. Admission to Honours in History is at the discretion of the Head of School.

- **ZHSS4008** History Honours Special Topic 2
  - This course is intended for History students undertaking the BA (Hons) program. It involves advanced coursework to be determined by the Head of School. Admission to Honours in History is at the discretion of the Head of School.

- **ZINT1006** Academic and Professional Writing
  - This course develops students' academic writing and research skills. Students will critically analyse academic and professional texts in order to learn about the ways in which academic and professional writers communicate their arguments for different audiences. They will practice planning and writing a range of different text types such as essays and reports, using content from their own disciplines wherever possible, and applying appropriate strategies to improve their writing, strengthen their argument and express their meaning more clearly.

- **ZINT2100** Introduction to Cyber-Security: Policy & Operations
  - Cyber-security is headline news and a growing challenge for national and global security, while computer technology now pervades every aspect of the personal and professional lives of our graduates. This technology underpins enormous performance improvements but also brings serious vulnerabilities. The many forms of cyber-threats - such as data theft, surveillance, and system compromise - have become tools of activism, corporate and state espionage, warfare, counter-proliferation, and intelligence gathering. This course provides an in-depth introduction to the strategic and national security challenges of cybersecurity, and provides students with the skills to defend their organisation and their personal computers from the most common forms of attack.

- **ZPEM1101** Chemistry 1A
  - The course commences with chemical reactions, 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. Intermolecular forces are introduced which then leads to the chemistry of solutions and their properties. Finally, the chemistry of carbon, organic chemistry, is studied. Sub-topics include classes of organic compounds and common functional groups; and conclude with an introduction to biological chemistry.

- **ZPEM1102** Chemistry 1B
  - 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. In kinetics, the temperature and concentration dependence for rates of reaction are discussed. This includes the concept of rate laws, activation energy and mechanism. The degree to which a reaction proceeds (chemical equilibrium) is discussed and related to the change of free energy. Electron transfer is introduced as an important area of chemistry, together with the principles of electrochemical cells. Finally, some military chemistry is presented, including a brief introduction to chemical and biological weapons.

- **ZPEM1201** Geography 1A: Introduction to Global Change
  - What are the major global challenges and how will these affect you? This course approaches global challenges through physical and human geographic perspectives to understand their nature and magnitude. The course has an Australian context and it demonstrates the necessity of “thinking globally” to understand and respond appropriately to global changes. What are the causes of global change, and how do people attempt to manipulate and control changing environments? We examine pressing issues such as: population growth, the design of cities and transport, the global drugs trade, and energy access and consumption. You will discover how these issues and others are interconnected through a hands-on approach, which includes a 2 day field school. This provides a geographically connected view for the future and complements Contemporary Global Change ZPEM1202.
ZPEM1202 Geography 1B: Contemporary Global Change
HPW6
Exploring the contemporary global changes and their local implications provides insights into the drivers of change and resource conflicts. Successful management and resilience depend on understanding how change happens and ways it can be managed. Topics may include the historical origins of contemporary global processes, the changing global economy, emerging and current environmental issues including land degradation, drought and climate change, adaptation in agriculture, weed management, ways of analysing and managing environmental change, patterns of health and disease, and the nature of discourse and debates around global processes.

As with Introduction to Global Change in first session, the emphasis is on the linkages between social and physical geographies across a range of scales.

ZPEM1301 Mathematics 1A
HPW6
This course emphasises 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. This course will also cover material from complex numbers. 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
HPW6
Prerequisite: ZPEM1301
This course covers material from ordinary differential equations, statistics and multi-variable calculus. These are important tools when mathematics is applied to situations in science and engineering. Students will study first-order and second order ODEs analytically, graphically and numerically. Statistics concerns the use of data to obtain information about real-life situations and problems. There are various statistical tools that help extract useful information from data. Topics covered are: measures of location, variability in data, histograms and distributions of discrete and continuous variables. The ideas and concepts of calculus of functions with a single variable are generalised to functions with two or more variables. Topics include: surfaces in three dimensions, partial derivatives, gradient vector, directional derivative and multi-variable optimisation.

ZPEM1303 Engineering Mathematics 1A
HPW5
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
HPW5
Prerequisite: ZPEM1303
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.

ZPEM1305 Engineering Problem Solving
HPW5
Engineers are often called upon to use knowledge of their engineering discipline, science, mathematics and logic to find suitable solutions to a wide range of problems. Understanding a given problem, and then developing an appropriate mathematical model to analyse solutions to this problem, are essential steps in the problem solving process. The emphasis of this course is on developing the mathematical reasoning ability needed to make these steps in problem solving. This will include the formulation of mathematical models and the development of the general skills needed to analyse these models, including both analytical and numerical techniques. Examples from a variety of practical engineering problems will be examined throughout the course.

ZPEM1402 Introduction to Oceanography
HPW5
This course is a broad introduction to the interconnected physical, chemical, biological and geological aspects of the oceans. Topics may include: physical and chemical properties of seawater; and what their distributions tell us about ocean circulation; the role of the oceans and ocean currents in Earth's climate and El Nino; an introduction to waves and tides; modern ocean measurement technologies such as robot gliders and satellites; place tectonics and the formation and structure of the seafloor; marine biology and ecosystems; marine resources and environmental management. The fascinating interconnections between these different aspects of Oceanography are highlighted. An Oceanography excursion is usually part of the course.

ZPEM1501 Physics 1A: Mechanics, Waves and Thermodynamics
HPW5.5
Students will be introduced to the physics that underpins many science and engineering disciplines. The course syllabus includes the discussion of motion, forces, energy, oscillations, waves, temperature, heat and entropy. The course includes a laboratory program relating to and supplementing the lecture material.

ZPEM1502 Physics 1B: Electromagnetism and Modern Physics
HPW5.5
Students will be introduced to some of the fundamentals of contemporary physics through a selection of topics spanning important areas such as electromagnetism, optics, relativity, quantum physics, atomic and nuclear physics. The course includes a laboratory program relating to and supplementing the lecture material.
This course for students in the CDF program introduces the philosophy, thinking, skills and techniques involved in the study of science. It draws on a number of topics from across the School’s various disciplines, and includes exposure to active areas of research. Students will attend lectures and seminars, participate in tutorials and workshops, read from the scientific literature, and undertake small-scale experimentation and/or theoretical projects.

ZPEM1901 Contemporary Issues in Science
HPW4

This course for students in the CDF program introduces the philosophy, thinking, skills and techniques involved in the study of science. It draws on a number of topics from across the School’s various disciplines, and includes exposure to active areas of research. Students will attend lectures and seminars, participate in tutorials and workshops, read from the scientific literature, and undertake small-scale experimentation and/or theoretical projects.

ZPEM2102 Organic Chemistry 2
HPW5
Prerequisite: 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 methods for structure and determination such as Nuclear Magnetic Resonance (NMR) and infra-red (IR) and more. Organic reaction mechanisms are investigated using traditional functional groups and reagents, and an understanding of the chemical driving forces that lead to particular products will be gained.

ZPEM2113 Inorganic Chemistry and Spectroscopy
HPW5
Prerequisite: ZPEM1101 and ZPEM1102

Spectroscopy is the chemist’s most powerful tool for observing atomic and molecular structure and behaviour of atoms and molecules. We will use quantum chemistry to describe electronic spectroscopy using simple models such as electrons in a box, as well as atomic and molecular orbital theory. The relationship between microscopic interactions and bulk thermodynamic properties will then be examined and the principles of statistical mechanics developed. Various models of bonding are introduced and applied to compounds of the transition metals, providing a basis for understanding the special chemistry of these fascinating elements. Stereochemistry, isomerism, spectroscopy and magnetic properties are studied, and the essential role played by transition metals in biological and catalytic systems is highlighted.

ZPEM2114 Biological Chemistry
HPW5
Prerequisite: ZPEM2102

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 use of NMR spectroscopy to determine the three-dimensional structure of proteins is discussed, in particular multi-dimensional NOE techniques. The structure and function of DNA and RNA are then examined. Topics covered include replication, transcription, translation and gene regulation. The course concludes with an examination of the general aspects of inorganic chemistry in biological systems, in particular the role of metals in medicine.

Metallo-drugs that interact with DNA and/or proteins, e.g. cisplatin and ruthenium(II) complexes that have shown recent potential as anticancer and antimicrobial agents, are of particular interest. Aspects of cell biology, for both eukaryotic cells and bacteria, will also be introduced to help gain a deeper understanding of why these metallo-drugs have (or may have) clinical value.

ZPEM2202 Ecological Biogeography
HPW5
An introduction to biogeography, the study of why organisms live where they do. In this course we will investigate factors that influence plant and animal distributions. Topics covered include: energy flow and nutrient cycling in ecosystems; habitat and niche concepts; how climate and topography affect the distribution of species; short and long distance dispersal of plants and animals; competition and interaction between species; the effects of natural and human-induced disturbance on biological communities; and Island Biogeography Theory. Contemporary biogeographical and environmental issues may be highlighted. The course normally includes a five day residential field school in May.

ZPEM2207 Social Geography
HPW5
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 Development Geography
HPW5
Development Geography focuses on the background to, and processes of, economic, political, cultural and social change. Working with case studies drawn predominately from the Asia-Pacific region, this unit examines the history of development processes, the politics of development interventions, linkages between resources, environment and conflict in the developing world, and critical approaches to development. The theoretical background to economic geography and development studies used to frame these examinations is of value to those taking geography majors as well as those enrolled in International and Political Studies, History, Economics and Business. The course provides useful context for those seeking to understand conflict in the region.

ZPEM2212 Managing Environmental Change
HPW5
The course is concerned with changes in natural resources (water, soil, plants and animals, landscapes) and their management. The course develops scientific skills and understanding to manage and sustain resource use. The provision of services is examined in the field and through other activities in this course. Skills and knowledge will be developed in a diversity of natural resource settings or examples such as forestry, farming, floodplain, weed and mine management to give students an understanding of the scale of change and the ways good resource managers can achieve desirable outcomes. Integration of human and biophysical scientific approaches and field studies are integral parts of the course.
ZPEM2213  Eyes on the Ground: Applications of GIS and RS

HPW5

Geospatial analysis is the exciting surveillance science that has developed from geography and the space industry. It includes the collection and interpretation of remotely sensed imagery and other geographical data and is used by almost all industries including the military, national parks, city planners and marine scientists.

Remote sensing today involves the use of electromagnetic radiation sensors mounted on satellites, aircraft and UAVs to record images of the environment, which can yield invaluable spatial information. Modern geospatial technologies have radically changed our perceptions of the earth, our methods of data analysis, and our ability to solve social and environmental problems. In this course we will study the following questions: How do we acquire geospatial data? What are the relationships between properties of the environment and geospatial data? How do we process and interpret geospatial data to yield new information about the environment? How do we integrate remotely sensed geospatial data with other data in Geographic Information Systems? By the end of the course you will know the answers to all these questions, you will be able to use a remote sensing package and a GIS package, and you will have carried out fieldwork to relate geospatial data to the real world.

ZPEM2302  Mathematical Tools for Science

HPW5

Prerequisite: ZPEM1302 or ZPEM1304

The emphasis of this course is on developing mathematical tools for a variety of different modelling contexts from the Sciences. The course is taught in two strands, Data Analysis and Multivariable Calculus. The Data Analysis strand uses data from simple experimental and observational studies, and introduces graphical methods for data presentation and exploration. It discusses the important concepts of populations, samples and randomness, and explains how to relate sample values to population values and test claims about population parameters. Association between different measurements is assessed using contingency tables. The Multivariable Calculus strand introduces the concepts of functions of several variables, especially when auxiliary constraints must also be satisfied. Case studies in both strands will illustrate how the mathematical tools operate in a wide range of disciplines including Geography, Chemistry, Physics and Oceanography. The computer package MATLAB will be used throughout the course, particularly for its powerful graphics capabilities.

ZPEM2309  Engineering Mathematics 2A

HPW6

Prerequisite: ZPEM1304

The course covers two distinct topics. The first, Ordinary Differential Equations (ODEs), looks at the basics of mathematical modelling with ODEs, first-order and second-order ODEs, Laplace transform methods, series solutions, 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 examples from engineering and applied mathematics.

ZPEM2310  Engineering Mathematics 2B

HPW6

Prerequisite: 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 several different coordinate systems (for example, Cartesian and polar coordinates).

The course will cover 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: reliability analysis, hypothesis testing, failure data and regression analysis.

ZPEM2311  Mathematical Modelling

HPW5

Prerequisite: ZPEM1302

A course extending the Linear Algebra and Calculus studied in first year, with particular emphasis on the application of Mathematics to problems in the Physical and Environmental Sciences. The course combines the study of first- and second- order differential equations, including partial differential equations, with the concepts of linearity and linear superposition to develop mathematical models in such areas as mechanics, population growth and harvesting, chemical reactions, sound, diffusion and wave motion.

ZPEM2312  Fundamentals of Data Analysis

HPW4

Exclusion: ZPEM1301, ZPEM1302, ZPEM1303, ZPEM1304, ZPEM2302, ZPEM2309, ZPEM2310 and ZBUS2104.

This course provides a foundation for quantitative methods applicable to students in their future careers. It teaches the fundamentals of data analysis with emphasis on the analysis of data arising from real-life situations across the disciplines. It focuses on the understanding of the concepts of statistics without overemphasizing the mathematical detail. The course teaches the principles of good experimental design, as well as the interpretation and critical evaluation of statistical information presented in the media and in reports published by organisations. It introduces a computer software package, Excel, which is used for data exploration, presentation and analysis. Main topics covered include: gathering, organising and summarising data; using graphical techniques to present statistical information; measures of location and spread; probability distributions such as the normal and binomial distributions; confidence intervals and hypothesis tests for a single sample; simple linear regression; contingency tables.

ZPEM2313  Discrete Mathematics with Applications

HPW5

Discrete Mathematics is a rapidly growing area of mathematics with many current and emerging applications. It is the study of mathematical structures that are discrete; in contrast with calculus which deals with continuous change. The importance of Discrete Mathematics today lies in its numerous practical and relevant applications. It plays an essential role in modelling the natural world (e.g., the genome) and the technological world (e.g., the Internet), and in designing efficient solutions such as Internet routing protocols. It is commonly used in cryptography, computer security, electronic banking, algorithms, theory of computing, telecommunications, web search engines, to mention a few.
Emphasis will be placed on developing techniques and uses in applications.Modelling of processes and phenomena which occur in economics and the physical, environmental and life sciences will be used as a vehicle throughout. Topics to be covered include: combinatorics and counting, proof by induction and recurrence relations, graph theory and networks, matrix arithmetic and Markov chains, logic and finite set theory.

ZPEM2401  Australian Waters and their Dynamics
HPW5
Prerequisite: ZPEM1302 or ZPEM1304; and ZPEM2302, ZPEM1501 and ZPEM1402

This course will examine the major currents around Australia and their influence on fisheries, coastal communities and climate. These currents include the Leeuwin Current, Eastern Australian Current, Antarctic Circumpolar Current, and the Indonesian Throughflow. Before investigating the currents, the basic principles of ocean properties (potential temperature, salinity, and density) and ocean forces (gravity, pressure, pressure gradients, Coriolis, friction) will be examined along with the primary ocean dynamics and their balances (geostrophic flow and Ekman transport). This will provide understanding of the forces causing and influencing the currents and provide a framework for the Australian currents to be discussed. The basics of waves and tides will also be outlined, including the tides around Australia. There will be an Oceanography field school at Jervis Bay.

ZPEM2502  Physics 2B: Electrons, Photons and Matter
HPW5.5
Prerequisite: ZPEM1301 or ZPEM1303, ZPEM1302 or ZPEM1304, ZPEM1501, ZPEM1502, ZPEM2302 or ZPEM2309

The course examines the physics of electromagnetism, quantum mechanics, condensed matter and semiconductors. Electrons are the sources of electric and magnetic fields and fundamentals to our information society. Electrons are considered particles but also have a wave nature, while electromagnetic waves also have a particle nature, the photon. This particle-wave dualism is unfamiliar to our personal macroscopic experience but is essential for the microscopic world. Electrons and photons also give rise to the functionality of the semiconductor materials that underpin our modern technology. The course includes a laboratory program relating to and supplementing the lecture material.

ZPEM2506  Physics 2A: Meteorology and Atmospheric Physics
HPW5
Prerequisites: ZPEM1301 or ZPEM1303, ZPEM1302 or ZPEM1304, ZPEM1501, ZPEM1402 or ZPEM1502.

In this course we investigate the fundamentals of atmospheric physics and meteorology. Topics covered include: hydrostatic balance and the vertical structure of the atmosphere; stability; cloud formation and precipitation; geostrophic, gradient and ageostrophic balances; winds; synoptic scale weather systems, air masses and fronts; radiation and the general circulation of the atmosphere; boundary layer processes. Material will be illustrated with applications from areas such as aviation, the marine and land environments, and our everyday experience of weather. The course includes a laboratory program relating to, and supplementing the lecture material.

ZPEM2901  Research Project 1
HPW3

Students in the CDF Program will undertake one or more research-based projects together with coursework as set by the School. As one of the aims of the CDF program is to develop critical thinking and independent research skills, the projects will involve ‘hands-on’ research experience in collaborations with staff members and their research team. A supervisor, who is a member of academic staff, will work closely with the student and will manage each project. The project/s will be chosen after discussion between the student, the supervisor and possibly other members of staff.

ZPEM3103  Quantum Theory and Applications in Spectroscopy
HPW5
Prerequisite: ZPEM1301, ZPEM1302, ZPEM2113 or ZPEM2502

Since the work of Isaac Newton, the development of quantum theory at the beginning of the 20th century was the greatest advance in physical science. Arguably, quantum mechanics has now become the most successful theory of all time. This course for upper level students of physics and chemistry presents a brief history of quantum theory, followed by an introduction to the standard formalism of quantum mechanics, e.g. the postulates of quantum theory, the properties of linear operators, Dirac notation etc. The gained knowledge is then applied to the physics of atoms and molecules and a range of spectroscopic methods, including electron spin resonance, nuclear magnetic resonance and rotational, vibrational and electronic spectroscopy.

ZPEM3107  Explosives
HPW5
Prerequisite: ZPEM2102 and ZPEM2113; or ZINT2501

Diverse aspects of explosives chemistry are covered, beginning with an introduction to explosive reactions and basic methods of estimating performance. Synthesis and properties of organic high explosives are discussed, and the relationship between structure and reactivity is explored. Various analytical detection methods are examined in the context of trace analysis of hidden explosives, including field methods, laboratory techniques and current research.

The second part of the course concentrates on the physical processes occurring during initiation and explosion. Different methods for calculating detonation parameters and modelling explosive output are investigated. Factors affecting sensitivity are discussed, along with insensitive munitions.

ZPEM3121  Supramolecular Chemistry
HPW5
Prerequisite: ZPEM2102 and ZPEM2113

This course draws together concepts in inorganic, organic and some physical chemistry to study the behaviour and applications of supramolecular assemblies. Supramolecular Chemistry describes the chemistry of the interaction between discrete molecules and the collective properties of this interaction. Many supramolecular structures are found in the biological machinery of the cell and a number of emerging technologies employ molecular building blocks in the set of chemical applications now called nanotechnology.
ZPEM3202 Cultural Geography
HPW5
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 Conservation Biogeography
HPW5
The contribution of biogeography in facing the current global extinction crisis. The course begins with a consideration of historical biogeography as the basis for understanding past, present and future patterns of biological diversity on earth. The principles and practice of the sub-discipline Landscape Ecology are then examined with particular emphasis given to wildlife ecology in Australia. Other ecological systems and their management may also be emphasised.

ZPEM3204 Environmental Hazards
HPW5
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.

ZPEM3208 Geographic Research Methods
HPW5
Prerequisite: 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 five days duration. Students are advised that this course requires self-directed study, and those students contemplating enrolling without having taken at least two third year geography courses are advised first to seek academic advice from the Geography discipline co-ordinator.

ZPEM3222 Coastal Geomorphology
HPW5
Australia has a very long coastline and more than 85% of our population is living along the coast. This course provides an introduction to coastal geomorphology which examines the development and evolution of coastal landforms and the processes responsible for modifying our coasts. It deals with three components: coastal hydrodynamics, sediment and sediment transport, and landform features.

Special emphasis is given to the interaction and feedbacks between these three components, plus human activities. Finally the response of the coastal zone to the contemporary climate and sea-level change, as well as coastal protection and management issues are also discussed. This course can contribute to either the geography or the oceanography major.

ZPEM3301 Topics in Mathematics
HPW5
Prerequisite: ZPEM2311
This course introduces a variety of topics in mathematics, including the historical development of mathematics. Topics may be selected from the following: Newton’s “Principia” and the birth of classical mechanics; data analysis; calculus of variations; complex variables; projectiles; optimization techniques; nonlinear dynamical systems theory; industrial mathematics.

ZPEM3311 Mathematical Methods for Differential Equations
HPW5
Prerequisite: ZPEM2311
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.

ZPEM3313 Applied Nonlinear Dynamics
HPW5
Many nonlinear equations do not have explicit solutions. This course shifts the focus from finding explicit solutions to discovering geometric properties of solutions. It also recognises that even a small amount of nonlinearity in a physical system can be responsible for very complicated chaotic behaviour. The fact that nonlinear systems do not guarantee regular or predictable behaviour is having a major impact on many fields of science and engineering, as well as mathematics. The discovery of chaos in simple dynamical systems changes our understanding of physical processes and has many practical applications including the understanding of the dynamics of the weather and climate, excitable media such as cardiac tissue and nerve fibres, population dynamics, transport in complex flow fields, to mention a few. This course introduces the fundamentals of nonlinear dynamics with applications to physics, engineering, biology, and chemistry. It takes an intuitive approach with emphasis on geometric thinking, analytic and computational methods and makes extensive use of software packages, such as Matlab.
ZPEM3401 Ocean Circulation and Mixing
HPW5
Prerequisite: ZPEM2401 and ZPEM2506
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.

ZPEM3404 Ocean Waves and Modelling
HPW5
Prerequisites: ZPEM2401 and ZPEM2506
This course covers three aspects of oceanography: waves, modelling and estuaries. Waves occur both on the surface of the ocean and within the ocean. Internal waves are important in mixing and sonar operations. After reviewing the basic principles of surface waves, this course presents the basics of internal waves, examining the dynamics, generation, propagation, and their impact on the ocean environment. Ocean modelling is a key component both in climate studies and naval operations. Basic modelling principles will be covered for both analytical and numerical ocean models with application to examples such as small-scale coastal systems, tsunamis, and the global ocean circulation. 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 may be introduced. This course may include a field school in Jervis Bay.

ZPEM3503 Electromagnetic Waves and Advanced Materials
HPW5
Prerequisites: ZPEM2502 and ZPEM2506
The first part of the course is concerned with the propagation and interaction of electromagnetic radiation as employed in remote sensing situations. Even before it reaches the antenna the radiation must pass through cables and waveguides, and this also involves propagation and interaction. Fundamental to all of this are Maxwell’s equations and an understanding of what they can tell us. The second part of the course provides an introduction to advanced materials with an emphasis on their structural and magnetic properties. The various structural states and phase diagrams are considered in terms of microstructure and its influence on mechanical properties. Finally, the basic theories of magnetism and the different types of magnetic materials are described and the use of modern magnetic materials is discussed with particular reference to permanent magnets, transformers, and data storage.

ZPEM3528 Thermodynamics and Nuclear Physics
HPW5
Prerequisites: ZPEM2502
In this course thermodynamics is considered using an approach that emphasises the atomic nature of matter. Topics covered include heat capacity of solids, quantal gases and black body radiation which all rely on the statistical and quantum nature of the thermodynamic laws. The second part of the course discusses nuclear and particle physics and their applications. Subatomic physics in the big bang and in stars is responsible for the very character of our natural environment. Furthermore many modern technologies are based on subatomic physics. Examples can be found in the areas of power generation, medical diagnostics and treatment, industrial processing and control, as well as in environmental protection. The discussion will focus on the physics principles and phenomena that underpin such technologies.

ZPEM3532 Advanced Topics in Physics and Oceanography
HPW5
In this course the basic physical principles behind, and the practical implementation of, selected important technologies such as sonar, lasers, etc. will be examined. In addition, the course will enable students to apply their scientific knowledge and understanding to a directed research project in either Physics or Oceanography.

ZPEM3901 Research Project 2
HPW3
Students in the CDF Program will undertake one or more research-based projects together with coursework as set by the School. As one of the aims of the CDF program is to develop critical thinking and independent research skills, the projects will involve ‘hands-on’ research experience in collaboration with staff members and their research teams. A supervisor, who is a member of academic staff, will work closely with the student and will manage each project. The project will be chosen after discussion between the student, the supervisor and possibly other members of staff.

ZPEM3902 Research Project 3
HPW3
Students in the CDF Program will undertake one or more research-based projects together with coursework as set by the School. As one of the aims of the CDF program is to develop critical thinking and independent research skills, the projects will involve ‘hands-on’ research experience in collaboration with staff members and their research teams. A supervisor, who is a member of academic staff, will work closely with the student and will manage each project. The project will be chosen after discussion between the student, the supervisor and possibly other members of staff.

ZPEM4001 Science Honours Research 1
UOC12 HPW2
This 12UOC research course comprises part of the research component of all streams in 4513 Science (Honours) and also comprises part of the research component of the ZHSSGH Geography stream in 4511 Arts (Honours).
ZPEM4002  Science Honours Research 2
UOC24  HPW2
This 24UOC research course comprises part of the research component of all streams in 4513 Science (Honours) and also comprises part of the research component of the ZHSSGH Geography stream in 4511 Arts (Honours).

ZPEM4003  Science Honours Research 3
UOC18  HPW2
This 18UOC research course comprises part of the research component of all streams in 4513 Science (Honours) and also comprises part of the research component of the ZHSSGH Geography stream in 4511 Arts (Honours).

ZPEM4004  Science Honours Research 4
HPW2
This 6 UOC research course comprises part of the research component of all streams in 4513 Science (Honours) and also comprises part of the research component of the ZHSSGH Human Geography stream in 4511 Arts (Honours).

ZPEM4101  Chemistry Honours Special Topic 1
HPW2
This 6UOC course comprises part of the coursework requirement for the ZPEMAH Chemistry stream in 4513 Science (Honours); see the stream description under Publications and Marketing for details. Its topic is tailored to the interests and project(s) of the enrolled student(s). The course is available in both semesters.

ZPEM4102  Chemistry Honours Special Topic 2
HPW2
This 6UOC course comprises part of the coursework requirement for the ZPEMAH Chemistry stream in 4513 Science (Honours); see the stream description under Publications and Marketing for details. Its topic is tailored to the interests and project(s) of the enrolled student(s). The course is available in both semesters.

ZPEM4201  Geography Honours Special Topic 1
HPW2
This 6UOC course comprises part of the coursework requirement for the ZPEMGH Geography stream in 4513 Science (Honours); see the stream description under Publications and Marketing for details. Its topic is tailored to the interests and project(s) of the enrolled student(s). The course is available in both semesters.

ZPEM4202  Geography Honours Special Topic 2
HPW2
This 6UOC course comprises part of the coursework requirement for the ZPEMGH Geography stream in 4513 Science (Honours); see the stream description under Publications and Marketing for details. Its topic is tailored to the interests and project(s) of the enrolled student(s). The course is available in both semesters.
Important Dates for Students in 2016

**S1 commences** 29 February
Last day to add courses via myUNSW 6 March
Last day to drop S1 courses without financial penalty 31 March
Provisional exam timetable released for S1 15 April
Last day to drop S1 courses without academic penalty 24 April
Last day to report exam clashes for S1 29 April
Mid-Semester Break 2 - 13 May
Final exam timetable released for S1 17 May
S1 Ends 10 June
S1 Study Recess 13 - 17 June
Examinations (UG students only) 20 June - 1 July
Mid-Year leave 4 - 15 July
S1 results published on myUNSW 14 July
S2 commences 18 July
S2 Results available 30 November
Examinations 6 - 17 November
S2 Study Recess 30 October - 31 December
S2 ends 16 December
Mid-Semester Break 8 - 19 May
S2 Study Recess 25 - 29 September
S2 Ends 27 October
S2 Study Recess 30 October - 5 November
S2 Results available 30 November
UNSW Confering of Degree Ceremonies 13 December
ADFA Graduation Day 14 December

**2016 Public Holiday Compensations S1**

- Canberra Day 14 March (Monday lost)
- Good Friday 25 March (Friday lost)
- Easter Monday 26 March (Monday timetable on Tuesday 29 March, Tuesday lost)
- ANZAC Day 25 April Saturday, (Monday timetable on Thursday 28 April, Thursday lost)
- Queen’s Birthday 13 June (During study recess)

**2016 Public Holiday Compensations S2**

- Family and Community Day 26 September (During Semester Break)
- Labour Day 3 October (Monday lost)

Approved ADFA Activities - Non Teaching Days for Undergraduate Students (Semester 2)

- Production Dress Rehearsal 9 August
- X/DC Day 31 August
- Sports Carnival (incl Tug-of-War) 22 September
- Ex-Green Eagles, Ex-Neptune, Ex-Wedgetail 14 October

Events

- ADFA Open Day 27 August
- Confering of degrees ceremony 7 December
- Graduation Day 8 December

Important Dates for 2017

**S1 commences** 6 March
Mid-Semester Break 8 - 19 May
S1 results published on myUNSW 14 July
S2 commences 18 July
S2 Results available 30 November
Examinations 6 - 17 November
S2 Study Recess 30 October - 5 November
S2 Study Recess 10 - 21 July
S2 study recess 24 - 28 October
Examinations (UG students only) 26 June - 7 July
S1 Results available 20 July
Mid-Year leave 10 - 21 July
S2 commences 24 July
S2 Study Recess 30 October - 5 November
S2 Study Recess 25 - 29 September
S2 Ends 27 October
S2 Study Recess 30 October - 5 November
Examinations 6 - 17 November
S2 Results available 30 November
UNSW Confering of Degree Ceremonies 13 December
ADFA Graduation Day 14 December

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