Aerospace Engineering

Overview

The Aerospace Engineering stream covers the analysis, design and operation of aircraft and spacecraft. Graduates work mainly on the design and manufacture of flight vehicles, their operation with major or satellite airlines and research for civil and military aerospace organisations. Owing to the international nature of aerospace industry, the topics studied cover a similar area and, in general, to the same depth of understanding as professional training programs in aerospace in other industrial countries. The aerospace industry is one of Australia's major exporters of high value added manufactured goods.
**Faculty**  
Faculty of Engineering

**School**  
School of Mechanical and Manufacturing Engineering

**Study Level**  
Undergraduate

**Minimum Units of Credit**  
168

**Specialisation Type**  
Honours
Available in Program(s)

Program(s) in which this honours is available

Bachelor of Engineering (Honours) - BE (Hons)  
3707 Engineering (Honours)  
Faculty: Faculty of Engineering  
Campus: Kensington  
Units of Credit: 192  
Typical Duration: 4 Years
**Specialisation Structure**

Students must complete 168 UOC.

**Level 1 Core Courses**

Students must take 42 UOC of the following courses.

- **ELEC1111 | 6 UOC**
  Electrical and Telecommunications Engineering

- **ENGG1000 | 6 UOC**
  Introduction to Engineering Design and Innovation

- **ENGG1300 | 6 UOC**
  Engineering Mechanics

One of the following:
- **MATH1131 | 6 UOC**
  Mathematics 1A

One of the following:
- **MATH1141 | 6 UOC**
  Higher Mathematics 1A

One of the following:
- **MATH1231 | 6 UOC**
  Mathematics 1B

One of the following:
- **MATH1241 | 6 UOC**
  Higher Mathematics 1B

One of the following:
- **PHYS1121 | 6 UOC**
  Physics 1A

One of the following:
- **PHYS1131 | 6 UOC**
  Higher Physics 1A
Level 2 Core Courses

Students must take 48 UOC of the following courses.

DESN2000 | 6 UOC
Engineering Design and Professional Practice

ENGG2400 | 6 UOC
Mechanics of Solids 1

ENGG2500 | 6 UOC
Fluid Mechanics for Engineers

MATH2019 | 6 UOC
Engineering Mathematics 2E

MATH2089 | 6 UOC
Numerical Methods and Statistics

MMAN2130 | 6 UOC
Design and Manufacturing

MMAN2300 | 6 UOC
Engineering Mechanics 2

MMAN2700 | 6 UOC
Thermodynamics
Level 3 Core Courses

Students must take 36 UOC of the following courses.

AERO3110  |  6 UOC
Aerospace Design 1

AERO3410  |  6 UOC
Aerospace Structures

AERO3630  |  6 UOC
Aerodynamics

AERO3660  |  6 UOC
Flight Performance and Propulsion

MMAN3000  |  6 UOC
Professional Engineering and Communication

MMAN3200  |  6 UOC
Linear Systems and Control

Level 4 Core Courses

Students must take 12 UOC of the following courses.

AERO4110  |  6 UOC
Aerospace Design 2

AERO4620  |  6 UOC
Dynamics of Aerospace Vehicles, Systems and Avionics

THESIS COURSES

Students must take 12 UOC of thesis courses.

NOTE: For further details about the practice or research thesis courses, please check the Thesis information page on the school website.

MMAN4010  |  6 UOC
RECOMMENDED DISCIPLINARY ELECTIVES

Students must take at least 6 UOC of the following courses.

NOTE:
All disciplinary electives should be chosen from the "recommended elective list" and/or "disciplinary elective list".
At least 6 UOC of disciplinary electives must be chosen from the "recommended elective list".

AERO9500  |  6 UOC
Space Systems Architectures and Orbits

AERO9610  |  6 UOC
The Space Segment

AERO9660  |  6 UOC
Advanced Aerospace Propulsion

MECH4305  |  6 UOC
Fundamental and Advanced Vibration Analysis

MECH4320  |  6 UOC
Engineering Mechanics 3
MECH4620 | 6 UOC
Computational Fluid Dynamics

MECH4900 | 6 UOC
Mechanics of Fracture and Fatigue

MECH9420 | 6 UOC
Composite Materials and Mechanics

MMAN4200 | 6 UOC
Additive Manufacturing

MMAN4400 | 6 UOC
Engineering Management

MMAN4410 | 6 UOC
Finite Element Methods

Disciplinary Electives

Remaining disciplinary electives can be chosen from the following list.
NOTE:
- At most 2 disciplinary electives (12 UOC) without a AERO, MECH, MANF or MMAN prefix can be taken.
- At most 1 disciplinary elective (6 UOC) may be substituted with another course in the School if the substituting course is NOT a core course for the stream and is at Level 3 or higher.
- Postgraduate courses or/and courses offered outside of the School may require manual enrolment.

COMP3141 | 6 UOC
Software System Design and Implementation

COMP3331 | 6 UOC
Computer Networks and Applications

ELEC4633 | 6 UOC
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<tr>
<th>Course Code</th>
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<tr>
<td>ENGG3060</td>
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<td>Maker Games</td>
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<td>MANF4100</td>
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<td>Design and Analysis of Product-Process Systems</td>
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<td>MANF4430</td>
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<tr>
<td>Reliability and Maintenance Engineering</td>
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<td>MANF4611</td>
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<td>Process Modelling and Simulation</td>
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<td>MANF6860</td>
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<td>Strategic Manufacturing Management</td>
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<td>MANF9400</td>
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<td>MANF9420</td>
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<td>Operations and Supply Chain Management in Engineering</td>
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<td>MANF9472</td>
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<td>MECH4100</td>
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<td>MECH4880</td>
<td>6</td>
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<tr>
<td>Refrigeration and Air Conditioning 1</td>
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<tr>
<td>MECH9325</td>
<td>6</td>
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<tr>
<td>Fundamentals of Acoustics &amp; Noise</td>
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MECH9650  6 UOC
Micro and Biofluidics

MECH9660  6 UOC
Biofluid Dynamics and Systems

MECH9720  6 UOC
Solar Thermal Energy Design

MECH9761  6 UOC
Automobile Engine Technology

MTRN4030  6 UOC
Optimisation Methods for Engineering Systems

MTRN9400  6 UOC
Control of Robotic Systems

SOLA5052  6 UOC
Biomass

SOLA5053  6 UOC
Wind Energy Converters

SOLA5056  6 UOC
Sustainable Energy for Developing Countries

SOLA5057  6 UOC
Energy Efficiency

**Level 1 Prescribed Electives**

Students can take up to a maximum of 12 UOC of the following courses.

NOTE:
- Students take ENGG1300 and ELEC1111 as Level 1 Core and are not required to take further Level 1 electives and may choose to substitute L1 electives for higher
level electives later in the program.
- ENGG1300 excludes CVEN1300, MINE1300, and MMAN1300.
- CHEM1031 and CHEM1041 will only be available to students enrolled in a program which has a Chemistry major.
- Students without any prior Chemistry should choose CHEM1001. Other students with HSC Chemistry who wish to study Chemistry in more depth should choose CHEM1011.

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<td>Engineering in Medicine and Biology</td>
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<td>BIOS1301</td>
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<td>Ecology, Sustainability and Environmental Science</td>
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<td>CEIC1000</td>
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<td>Sustainable Product Engineering and Design</td>
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<td>Chemistry 1A: Atoms, Molecules and Energy</td>
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<td>CHEM1021</td>
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<td>Chemistry 1B: Elements, Compounds and Life</td>
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<td>Higher Chemistry 1A: Atoms, Molecules and Energy</td>
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<td>Engineering Materials and Chemistry</td>
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Enrolment Disclaimer

Unless advised otherwise by your program authority, you should follow the rules for the handbook for the year you commenced your program. You are also responsible for ensuring you enrol in courses according to your program requirements. myUNSW enrolment checks that you have met enrolment requirements such as pre-requisites for individual courses but not that a course will count towards your program requirements.
Pre-2019 Handbook Editions

Access past handbook editions (2018 and prior)

Pre-2019 Handbook Editions
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Authorised by Deputy Vice-Chancellor (Academic)
CRICOS Provider Code 00098G
ABN: 57 195 873 179