

BACHELOR OF ENGINEERING ADVANCED (HONOURS) (3771)

Approved Abbreviation: BEngAdv(Hons)
Western Sydney University Program Code: 3771
AQF Level: 8

CRICOS Code: 063560B

This program applies to students who commenced in 2022 or later.

Students should follow the program structure for the session start date relevant to the year they commenced.

For Commencement Year 2017, please refer to: 3690.4
Bachelor of Engineering Advanced (Honours) (<http://handbook.westernsydney.edu.au/hbook/course.aspx?course=3690.4>)

Handbook summary 2023 and earlier

The Bachelor of Engineering Advanced (Honours) is a four year honours degree program. The program has been designed to meet Engineers Australia professional accreditation requirements. Students have the opportunity to focus on a discipline area by selecting a Major in Advanced Manufacturing, Civil, Construction, Electrical, Materials, Mechanical, Robotic & Mechatronic, and Sustainability engineering. The majors of Electrical, Mechanical, and Robotics & Mechatronics engineering are offered within the WSU-UNSW Collaborative Program (see below). In addition, students can specialise by selecting a Minor from a wide range of recommended subject sets that will complement their chosen discipline. Students in this program will need to maintain a minimum GPA of 5.0 at the end of completion of 160 credit points, and again at the completion of 200 credit points; those not meeting this academic performance requirement will be transferred to Bachelor of Engineering (Honours).

WSU-UNSW Collaborative Program

The WSU-UNSW Collaborative Program is exclusive to the Bachelor of Engineering Advanced (Honours) degree and offers three majors; Electrical, Mechanical and Robotics & Mechatronics engineering. UNSW academics deliver 5 subjects into this Program, with each major including 3 UNSW delivered subjects. Students who achieve a GPA of 5.7 or above at the completion of 2 years (160 cp) of study will be eligible to transfer to UNSW to complete the remainder of their studies and graduate with a UNSW Bachelor of Engineering (Honours) degree (subject to meeting the threshold requirements for student transfer). Students not transferring to UNSW will continue their studies at WSU in the Bachelor of Engineering Advanced (Honours) degree of their selected major.

Handbook summary from 2024

The Bachelor of Engineering Advanced (Honours) is a four-year honours degree program. The program has been designed to meet Engineers Australia professional accreditation requirements. Students have the opportunity to focus on a discipline area by selecting a Major in Advanced Manufacturing, Civil, Construction, Electrical, Materials, Mechanical, Robotic & Mechatronic, or Sustainability engineering. In addition, students can specialise by selecting a Minor from a wide range of recommended subject sets that will complement their chosen discipline. Students in this program will need to maintain a minimum GPA of 5.0 at the end of completion of 160 credit points, and again at the completion of 200 credit points; those not meeting this academic

performance requirement will be transferred to Bachelor of Engineering (Honours).

This program is taught at the Parramatta City - Hassall Street campus.

Early Exit

Students may exit this program on completion of 240 credit points with a 3691 Bachelor of Engineering Science (<https://hbook.westernsydney.edu.au/programs/bachelor-engineering-science/>)

Study Mode

Four years full-time or eight years part-time.

Program Advice

edbe@westernsydney.edu.au

Location

| Campus | Attendance | Mode | Advice |
|------------------------|------------|----------|-----------|
| Parramatta City Campus | Full Time | Internal | See above |
| Parramatta City Campus | Part Time | Internal | See above |

Accreditation

The Majors of Advanced Manufacturing, Materials and Sustainability are currently under provisional accreditations from Engineers Australia (EA). The Majors of Civil, Construction, Electrical, Mechanical and Robotics and Mechatronics are under full accreditations from Engineers Australia (EA).

The Major of Software Engineering will seek provisional accreditation from the Australian Computer Society (ACS) in 2021. Full accreditation will be sought after the first cohort graduates in 2025.

Inherent Requirements

There are inherent requirements for this program that you must meet in order to complete your program and graduate. Make sure you read and understand the requirements for this program online.

Inherent Requirements (https://www.westernsydney.edu.au/ir/inherent_requirements/inherent_requirements_for_engineering_courses/)

Work Integrated Learning

Western Sydney University seeks to enhance student learning experiences by enabling students to engage in the culture, expectations and practices of their profession or discipline. This program includes a placement or other community-based unpaid practical experience.

There is a mandatory work component required for completion of this program. Please contact the Program Advisor listed above for information.

International students should also refer to the link below for more information and a link to the Commonwealth Register of Institutions and Courses for Overseas Students (CRICOS).

Work Integrated Learning (WIL) for international students (https://www.westernsydney.edu.au/currentstudents/current_students/services_and_facilities/international_student_support/working_in_australia/work_integrated_learning/)

Admission

- Recommended studies: Physics and HSC Mathematics Extension 1 or HSC Mathematics Extension 2.

- Assumed knowledge required: Two units of Science, two units of English and Mathematics at Band 5 or higher.

Applications from Australian and New Zealand citizens and holders of permanent resident visas may be made via the Universities Admissions Centre (UAC) or directly through the Western Portal. Use the links below to apply via UAC or Western Sydney University. Applications made directly to Western Sydney do not have an application fee.

<http://www.uac.edu.au/>
<https://westernsydney.uac.edu.au/ws/>

Applicants who have undertaken studies overseas may have to provide proof of proficiency in English. Local applicants who are applying through the Universities Admissions Centre (UAC) will find details of minimum English proficiency requirements and acceptable proof on the UAC website. Local applicants applying directly to the University should also use the information provided on the UAC website.

International students currently completing an Australian Year 12 in or outside Australia, an International Baccalaureate in Australia or a New Zealand National Certificate of Educational Achievement (NCEA) level 3 must apply via UAC International.

<http://www.uac.edu.au/>

All other International applicants must apply directly to the University via the International Office.

International students applying to the University through the International Office can find details of minimum English proficiency requirements and acceptable proof on their website.

International Office (<http://www.westernsydney.edu.au/international/>)

Overseas qualifications must be deemed by the Australian Education International - National Office of Overseas Skills Recognition (AEI-NOOSR) to be equivalent to Australian qualifications in order to be considered by UAC and Western Sydney University.

Program Structure Current

This structure applies to students who commenced in 2024 or later. If you commenced prior to 2024 please refer to the relevant Structure tab for details.

Qualification for this award requires the successful completion of 320 credit points which include the subjects listed below.

Parts of these units may be taught at the Parramatta City - Hassall St campus or at the Parramatta South campus.

Year 1 Subject List

| Subject | Title | Credit Points |
|-----------|--|---------------|
| MATH 1034 | Mathematics for Engineers 1 (Advanced) | 10 |
| ENGR 1024 | Introduction to Engineering Practice | 10 |
| ENGR 1047 | Advanced Engineering Physics 1 | 10 |
| ELEC 1006 | Engineering Computing | 10 |
| MATH 1035 | Mathematics for Engineers 2 (Advanced) | 10 |
| ENGR 1018 | Fundamentals of Mechanics | 10 |
| ELEC 1003 | Electrical Fundamentals | 10 |
| ENGR 2023 | Advanced Engineering Physics 2 | 10 |

Year 2 - Year 4

Students must then select one of the following majors.

All majors will be offered in the Engineering Innovation Hub on Hassall Street.

Students may transfer to the Bachelor of Engineering (Honours) at the end of Year 1 or Year 2 of study, or the Bachelor of Engineering Science at the end of Year 1 of study.

Advanced Manufacturing, Testamur Major (T126) (<https://hbook.westernsydney.edu.au/majors-minors/advanced-manufacturing-ug-testamur-major/>)

Civil Engineering, Testamur Major (T131) (<https://hbook.westernsydney.edu.au/majors-minors/civil-engineering-ug-testamur-major/>)

Construction Engineering, Testamur Major (T132) (<https://hbook.westernsydney.edu.au/majors-minors/construction-engineering-ug-testamur-major/>)

Electrical Engineering, Testamur Major (T102) (<https://hbook.westernsydney.edu.au/majors-minors/electrical-engineering-ug-testamur-major/>)

Materials Engineering, Testamur Major (T128) (<https://hbook.westernsydney.edu.au/majors-minors/materials-engineering-ug-testamur-major/>)

Mechanical Engineering, Testamur Major (T103) (<https://hbook.westernsydney.edu.au/majors-minors/mechanical-engineering-ug-testamur-major/>)

Robotics and Mechatronics Engineering, Testamur Major (T104) (<https://hbook.westernsydney.edu.au/majors-minors/robotics-mechatronics-engineering-ug-testamur-major/>)

Sustainability Engineering, Testamur Major (T129) (<https://hbook.westernsydney.edu.au/majors-minors/sustainability-engineering-ug-testamur-major/>)

For the 40 credit points of free electives or Minors, students may choose one of the following Minors

Automation, Minor (0123) (<https://hbook.westernsydney.edu.au/majors-minors/automation-minor/>)

Biomedical Engineering, Minor (0122) (<https://hbook.westernsydney.edu.au/majors-minors/biomedical-engineering-minor/>)

Computer Aided Design (Mechatronics), Minor (0125) (<https://hbook.westernsydney.edu.au/majors-minors/computer-aided-design-mechatronics-minor/>)

Construction Economics, Minor (0119) (<https://hbook.westernsydney.edu.au/majors-minors/construction-economics-concentration/>)

Design for Sustainability, Minor (0339) (<https://hbook.westernsydney.edu.au/majors-minors/design-sustainability-minor/>)

Eco-Socially Conscious Design and Manufacturing, Minor (0310) (<https://hbook.westernsydney.edu.au/majors-minors/eco-socially-conscious-design-manufacturing-minor/>)

Geotechnical, Minor (0117) (<https://hbook.westernsydney.edu.au/majors-minors/geotechnical-minor/>)

Humanitarian Action in Practice, Minor (0327) (<https://hbook.westernsydney.edu.au/majors-minors/humanitarian-action-practice-minor/>)

Indigenous Australian Studies, Minor (0015) (<https://hbook.westernsydney.edu.au/majors-minors/indigenous-australian-studies-minor/>)

Structures, Minor (0116) (<https://hbook.westernsydney.edu.au/majors-minors/structures-minor/>)

Sustainability Engineering, Minor (0281) (<https://hbook.westernsydney.edu.au/majors-minors/sustainability-engineering-minor/>)

Telecommunications Engineering, Minor (0338) (<https://hbook.westernsydney.edu.au/majors-minors/telecommunications-engineering-minor/>)

Thermal and Fluid Systems, Minor (0126) (<https://hbook.westernsydney.edu.au/majors-minors/thermal-fluid-systems-minor/>)

Water and Environment, Minor (0118) (<https://hbook.westernsydney.edu.au/majors-minors/water-environment-minor/>)

Robotics and Mechatronics Engineering, Testamur Major (T104) (<https://hbook.westernsydney.edu.au/majors-minors/robotics-mechatronics-engineering-ug-testamur-major/>)

Sustainability Engineering, Testamur Major (T129) (<https://hbook.westernsydney.edu.au/majors-minors/sustainability-engineering-ug-testamur-major/>)

Elective Minors which may be available

Humanitarian Action in Practice, Minor (0327) (<https://hbook.westernsydney.edu.au/majors-minors/humanitarian-action-practice-minor/>)

Program Structure 2022-2023

Qualification for this award requires the successful completion of 320 credit points which include the subjects listed below.

Parts of these units may be taught at the Parramatta City - Hassall St campus or at the Parramatta South campus.

| Subject | Title | Credit Points |
|-----------|---|---------------|
| ENGR 1045 | Engineering Programming Fundamentals | 10 |
| ELEC 1006 | Engineering Computing | 10 |
| ENGR 4037 | Advanced Engineering Thesis 1: Preliminary Investigations | 10 |
| ENGR 4036 | Advanced Engineering Thesis 2: Detailed Investigations | 10 |
| ENGR 3017 | Industrial Experience (Engineering) | 0 |
| ENGR 1024 | Introduction to Engineering Practice | 10 |
| MATH 1034 | Mathematics for Engineers 1 (Advanced) | 10 |
| MATH 1035 | Mathematics for Engineers 2 (Advanced) | 10 |

Students must then select one of the following majors.

All majors will be offered in the Engineering Innovation Hub on Hassall Street.

Students may transfer to the Bachelor of Engineering (Honours) (<https://hbook.westernsydney.edu.au/programs/bachelor-engineering-honours/>) or the Bachelor of Engineering Science (<https://hbook.westernsydney.edu.au/programs/bachelor-engineering-science/>) at the end of Year 2 of study.

Advanced Manufacturing, Testamur Major (T126) (<https://hbook.westernsydney.edu.au/majors-minors/advanced-manufacturing-ug-testamur-major/>)

Civil Engineering, Testamur Major (T131) (<https://hbook.westernsydney.edu.au/majors-minors/civil-engineering-ug-testamur-major/>)

Construction Engineering, Testamur Major (T132) (<https://hbook.westernsydney.edu.au/majors-minors/construction-engineering-ug-testamur-major/>)

Electrical Engineering, Testamur Major (T102) (<https://hbook.westernsydney.edu.au/majors-minors/electrical-engineering-ug-testamur-major/>)

Materials Engineering, Testamur Major (T128) (<https://hbook.westernsydney.edu.au/majors-minors/materials-engineering-ug-testamur-major/>)

Mechanical Engineering, Testamur Major (T103) (<https://hbook.westernsydney.edu.au/majors-minors/mechanical-engineering-ug-testamur-major/>)