

# BACHELOR OF ENGINEERING (HONOURS) (3740)

**Approved Abbreviation:** BEng(Hons)

**Western Sydney University Program Code:** 3740

**AQF Level:** 8

CRICOS Code: 089429B

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 2019, please refer to: 3740.3 Bachelor of Engineering (Honours) (<http://handbook.westernsydney.edu.au/hbook/course.aspx?course=3740.3>)

For Commencement Year 2017, please refer to: 3740.2 Bachelor of Engineering (Honours) (<http://handbook.westernsydney.edu.au/hbook/course.aspx?course=3740.2>)

For Commencement Year 2016, please refer to: 3740.1 Bachelor of Engineering (Honours) (<http://handbook.westernsydney.edu.au/hbook/course.aspx?course=3740.1>)

The Bachelor of Engineering (Honours) is a four year full-time undergraduate engineering program. The program is designed to meet Engineers Australia professional accreditation requirements – Competency Stage 1 Professional Engineers, and Australian Quality Frameworks (AQF) Level 8.

Students have opportunities to choose a discipline area by selecting a major in Advanced Manufacturing, Civil, Construction, Electrical, Materials, Mechanical, Robotics & Mechatronics, and Sustainability Engineering. In addition, students can specialise by selecting one minor that will complement their chosen discipline. Meanwhile free elective subjects help students broaden their learning by developing knowledge and skills from other disciplines and professional fields for future.

Students can transfer to 3691 Bachelor of Engineering Science (<https://hbook.westernsydney.edu.au/programs/bachelor-engineering-science/>) but are strongly advised to consult their relevant APA when doing so. Credit transfer after the completion of Year 1 can be uncertain and requires careful consideration.

## Study Mode

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

## Program Advice

Program advice ([edbe@westernsydney.edu.au](mailto:edbe@westernsydney.edu.au))

Prospective students should visit the following websites for general enquiries about this program.

Enquire about this program (<https://enquiry.westernsydney.edu.au/courseenquiry/>) | Local Admission (<https://www.westernsydney.edu.au/future/>) | International Admission (<https://www.westernsydney.edu.au/international/home/apply/admissions/>) |

## Location

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

|                     |           |          |   |
|---------------------|-----------|----------|---|
| Penrith Campus      | Full Time | Internal | See above   |
| Penrith Campus      | Part Time | Internal | See above   |
| Sydney City Campus* | Full Time | Internal | Ankit Agarwal ( <a href="https://directory.westernsydney.edu.au/search/email/A.Agarwal@city.westernsydney.edu.au">https://directory.westernsydney.edu.au/search/email/A.Agarwal@city.westernsydney.edu.au</a> ) |

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

\* Programs delivered through an agreement with another party

## Accreditation

This program has Full Accreditation at the level of Professional Engineer at Penrith campus and Parramatta campus for five majors (Civil, Construction, Electrical, Mechanical and Robotics & Mechatronics) and Sydney City Campuses for three majors (Civil, Electrical and Mechanical only).

This program has Provisional Accreditation at the level of Professional Engineer at Penrith and Parramatta campus, for three majors (Advanced Manufacturing, Materials, and Sustainability).

Provisional Accreditation at the level of Professional Engineer will be sought at Sydney City Campuses for three majors (Advanced Manufacturing, Materials, and Sustainability).

Graduates of this program will be eligible to apply for full membership of Engineers Australia. They will be eligible to apply for Chartered Professional Engineering registration upon successful completion of required engineering practice period specified by Engineers Australia.

## 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/](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/](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 subjects of Science, two subjects of English and Mathematics (not General 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.

## 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 or Sequence tab for details.

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

### Sydney City Campus

Click here for the recommended sequence at Sydney City Campus ([https://www.westernsydney.edu.au/city/courses/undergraduate/engineering\\_honours/?utm\\_source=Handbook](https://www.westernsydney.edu.au/city/courses/undergraduate/engineering_honours/?utm_source=Handbook)).

### Full-time Autumn Intake - Parramatta and Penrith Campuses

**All students undertaking the Bachelor of Engineering (Honours) are required to enrol in MATH 1021 Mathematics for Engineers Preliminary.** Students with advanced mathematical skills (band 6 in Advanced Maths or a good grade in Extension Maths or equivalent) may take a readiness test at the start of semester to determine if they are ready for direct entry to MATH 1016 Mathematics for Engineers 1. This test is a mathematics aptitude test, students with the requisite skills should not need to study for it.

Students who pass the readiness test will have their enrolment transferred to MATH 1016 Mathematics for Engineers 1 by the School.

Students remaining in MATH 1021 Mathematics for Engineers Preliminary will be required to complete MATH 1016 Mathematics for Engineers 1 during second semester and will be encouraged to

complete MATH 1019 Mathematics for Engineers 2 during the Summer session.

## Year 1 Subject List

| Subject                     | Title                                 | Credit Points |
|-----------------------------|---------------------------------------|---------------|
| ELEC 1006                   | Engineering Computing                 | 10            |
| ENGR 1011                   | Engineering Physics                   | 10            |
| ENGR 1024                   | Introduction to Engineering Practice  | 10            |
| Select two of the following |                                       | 20            |
| MATH 1021                   | Mathematics for Engineers Preliminary |               |
| MATH 1016                   | Mathematics for Engineers 1           |               |
| MATH 1019                   | Mathematics for Engineers 2           |               |
| ENGR 1018                   | Fundamentals of Mechanics             | 10            |
| PROC 1008                   | Introduction to Materials Engineering | 10            |
| ELEC 1003                   | Electrical Fundamentals               | 10            |
| <b>Total Credit Points</b>  |                                       | <b>80</b>     |

## Year 2 - Year 4

Students must then select one of the following majors.

Students can transfer to Bachelor of Engineering Science (<https://hbook.westernsydney.edu.au/programs/bachelor-engineering-science/>) but are strongly advised to consult their relevant APA when doing so. Credit transfer after the completion of Year 1 can be uncertain and requires careful consideration.

### Penrith and Parramatta campuses

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/>)

### Sydney City campus

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

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

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

Academic Program Advisor

- Dr. Dharma Hagare is the Academic Program Advisor for Majors in Civil, Construction and Sustainability Engineering.  
Dr. Dharma Hagare (<https://directory.westernsydney.edu.au/search/name/Dharma%20Hagare/>)
- Dr Jeffrey (Ju Jia) Zou is the Academic Program Advisor for Majors in Electrical.  
Dr (<https://directory.westernsydney.edu.au/search/profile/2853/>) Jeffrey (Ju Jia) Zou (<https://directory.westernsydney.edu.au/search/profile/11045/>)
- Dr Mariam Darestani is the Academic Program Advisor for Majors in Mechanical, Robotic & Mechatronic, Materials and Advanced Manufacturing.  
Dr (<https://directory.westernsydney.edu.au/search/profile/17598/>) Mariam Darestani (<https://directory.westernsydney.edu.au/search/profile/17837/>)

## Structure 2022 - 2023

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

### Sydney City Campus

Click here for the recommended sequence at Sydney City Campus ([https://www.westernsydney.edu.au/city/courses/undergraduate/engineering\\_honours/?utm\\_source=Handbook](https://www.westernsydney.edu.au/city/courses/undergraduate/engineering_honours/?utm_source=Handbook)).

### Full-time Autumn Intake - Parramatta and Penrith Campuses

**All students undertaking the Bachelor of Engineering (Honours) are required to enrol in MATH 1021 Mathematics for Engineers Preliminary and undertake a readiness test at the beginning of their study.**

The readiness test will be conducted at the beginning of the first semester of enrolment and the result will be used to determine whether a student will remain in MATH 1021 Mathematics for Engineers Preliminary or be transferred by the School to MATH 1016 Mathematics for Engineers 1.

Students remaining in MATH 1021 Mathematics for Engineers Preliminary will be required to complete MATH 1016 Mathematics for Engineers 1 during second semester and will be encouraged to complete MATH 1019 Mathematics for Engineers 2 during the Summer session.

| Course   | Title                                 | Credit Points        |
|--|---------------------------------------|----------------------|
| <b>Year 1</b>  |                                       |                      |
| <b>Autumn session</b>  |                                       |                      |
| ENGR 1011  | Engineering Physics                   | 10                   |
| ENGR 1024  | Introduction to Engineering Practice  | 10                   |
| Select one of the following:   |                                       | 10                   |
| MATH 1021  | Mathematics for Engineers Preliminary |                      |
| MATH 1016  | Mathematics for Engineers 1           |                      |
| Select one of the following:   |                                       | 10                   |
| Students wishing to select Civil, Construction, Electrical, Mechanical, Robotics and Mechatronics or Advanced Manufacturing major choose |                                       |                      |
| ELEC 1006  | Engineering Computing                 |                      |
| Students wishing to select Materials Engineering major choose  |                                       |                      |
| PROC 1006  | Materials Engineering Fundamentals    |                      |
| Students wishing to select Sustainability Engineering major choose   |                                       |                      |
| ENGR 1050  | Sustainable Engineering Fundamentals  |                      |
|  |                                       | <b>Credit Points</b> |
|  |                                       | <b>40</b>            |
| <b>Spring session</b>  |                                       |                      |
| ENGR 1018  | Fundamentals of Mechanics             | 10                   |
| Select one of the following:   |                                       | 10                   |
| MATH 1016  | Mathematics for Engineers 1           |                      |
| MATH 1019  | Mathematics for Engineers 2           |                      |
| Select one of the following:   |                                       | 10                   |
| ELEC 1003  | Electrical Fundamentals               |                      |
| One elective chosen from the Civil, Construction or Mechanical major   |                                       |                      |
| Select one of the following:   |                                       | 10                   |
| PROC 1008  | Introduction to Materials Engineering |                      |

One elective chosen from the Advanced Manufacturing, Electrical, Robotics and Mechatronics or Sustainability major

|                      |           |
|----------------------|-----------|
| <b>Credit Points</b> | <b>40</b> |
|----------------------|-----------|

|                            |           |
|----------------------------|-----------|
| <b>Total Credit Points</b> | <b>80</b> |
|----------------------------|-----------|

### Students studying General Engineering via UAC

Students will complete all eight common fundamental subjects in the first year and then one of two subjects - ELEC 1003 Electrical Fundamentals and ENGR 1008 Engineering Materials will be counted as a free elective subject when they choose their Testamur Major at the end of the first year.

### Equivalent Subjects

The subjects listed below count towards completion of this program for students who passed these subjects in Autumn 2022 or earlier.

ENGR 1008 - Engineering Materials, replaced by PROC 1008 - Introduction to Materials Engineering

## Year 2 - Year 4

Students must then select one of the following majors.

Students can transfer to Bachelor of Engineering Science (<https://hbook.westernsydney.edu.au/programs/bachelor-engineering-science/>) but are strongly advised to consult their relevant APA when doing so. Credit transfer after the completion of Year 1 can be uncertain and requires careful consideration.

## Penrith and Parramatta campuses

### Engineering Majors - Autumn 2022

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

Civil, Testamur Major (T033) (<https://hbook.westernsydney.edu.au/majors-minors/civil-ug-pg-testamur-major/>)

Construction, Testamur Major (T034) (<https://hbook.westernsydney.edu.au/majors-minors/construction-ug-pg-testamur-major/>)

Electrical, Testamur Major (T035) (<https://hbook.westernsydney.edu.au/majors-minors/electrical-ug-pg-testamur-major/>)

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

Mechanical, Testamur Major (T036) (<https://hbook.westernsydney.edu.au/majors-minors/mechanical-ug-pg-testamur-major/>)

Robotics and Mechatronics, Testamur Major (T037) (<https://hbook.westernsydney.edu.au/majors-minors/robotics-mechatronics-ug-testamur-major/>)

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

### Engineering Majors - from Spring 2022

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/>)

## Sydney City campus

### Engineering Majors - Term 1, 2022

Civil, Testamur Major

Electrical, Testamur Major

Mechanical, Testamur Major

### Engineering Majors - from Term 2, 2022

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

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

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

## Academic Program Advisor

- Dr. Dharma Hagare is the Academic Program Advisor for Majors in Civil, Construction and Sustainability Engineering.  
Dr. Dharma Hagare (<https://directory.westernsydney.edu.au/search/name/Dharma%20Hagare/>)
- Dr Jeffrey (Ju Jia) Zou is the Academic Program Advisor for Majors in Electrical.  
Dr Jeffrey (Ju Jia) Zou (<https://directory.westernsydney.edu.au/search/profile/11045/>)
- Dr Mariam Darestani is the Academic Program Advisor for Majors in Mechanical, Robotic & Mechatronic, Materials and Advanced Manufacturing.  
Dr Mariam Darestani (<https://directory.westernsydney.edu.au/search/profile/17837/>)

## Elective Minors which may be available

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