

Bachelor of Engineering (Honours) (ETB001.1)

Please note these are the 2023 details for this course

Domestic students

Selection rank 60

Note:

The selection rank is the minimum ATAR plus adjustment factors required for admission to the program in the previous year. This is an indicative guide only as ranks change each year depending on demand.

English language requirements

An IELTS Academic score of 6.5 overall, with no band score below 6.0 (or equivalent).

[View IELTS equivalences](#)

Duration 4.0 years

UAC code 365016

Faculty Faculty of Science and Technology

Discipline Academic Program Area - Technology

Location UC - Canberra, Bruce

Fees 2021: Commonwealth Supported Place
2022: Commonwealth Supported Place

Disclaimer:

Annual fee rates

The fees shown are the annual fee rates for the course. The annual rate is the fee that applies to standard full-time enrolment, which is 24 credit points. The final fee charged is based on the proportion of 24 credit points in which a student enrolls. Students enrolled in a Commonwealth Support Place (CSP) are required to make a contribution towards the cost of their education, which is set by the Commonwealth Government. Information on Commonwealth Supported Places, HECS-HELP and how fees are calculated can be found [here](#).

International students

Academic entry requirements

To study at UC, you'll need to meet our academic entry requirements and any admission requirements specific to your course. Please read your course admission requirements below. To find out whether you meet UC's academic entry requirements, visit our [academic entry requirements page](#).

[View UC's academic entry requirements](#)

English language requirements

An IELTS Academic score of 6.5 overall, with no band score below 6.0 (or equivalent).

[View IELTS equivalences](#)

CRICOS code

099434M

Faculty

Faculty of Science and Technology

Discipline

Academic Program Area - Technology

Location

UC - Canberra, Bruce

Duration

4.0 years

Fees

2021: \$34,400 per year

2022: \$35,600 per year

Disclaimer:

Annual fee rates

The fees shown are the annual fee rates for the course. The annual rate is the fee that applies to standard full-time enrolment, which is 24 credit points. The final fee charged is based on the proportion of 24 credit points in which a student enrolls. Information on how fees are calculated can be found [here](#).

About this course

Engineer the future you've always dreamed of

Gain the knowledge, skills and experience to design and build the robotic, AI or Networking future you've always dreamed of creating with the highly respected UC Bachelor of Engineering (Honours).

Held over four years this course is has been created to help those students interested in exploring a career in either Robotics and Artificial Intelligence and/or Network and Software Engineering by creating a platform from which to choose your specialisation.

- Robotics & Artificial Intelligence - this specialisation offers conceptual grounding in intelligent systems with the opportunity to apply theoretical knowledge in a practical setting through direct access to humanoid robots, robotic arms, wheeled platforms and other hi-tech robotic equipment.
- Network and Software Engineering - in this course you will gain in-depth knowledge and skills in the design, development and operation of software-based networked systems, including mobile and wireless data communications networks, network security applications and services relating to cloud computing, big data and multimedia networks.

Study a Bachelor of Engineering (Honours) at UC and you will:

- gain highly desirable knowledge and skills in a future proof industry
- work with the latest computer aided software.
- learn how to design systems from the ground up
- become proficient in engineering research, design and management
- contribute your own ideas during site visits field work
- participate in numerous Work Integrated Learning (WIL) opportunities
- learn professional ideologies such as professional ethics, expectations and teamwork
- choose to specialise in either Robotics and Artificial Intelligence or Network and Software Engineering.
- be able to participate in the Engineers without Borders Challenge
- gain unrivalled access to industry and government stakeholders
- build extensive professional networks
- earn a globally recognised qualification
- be in-demand

Work Integrated Learning (WIL)

WIL is an integral component of the Bachelor of Engineering (Honours) course as it offers students the opportunity to gain valuable hands-on experience and build professional relationships through real work, or work-like placements.

As part of this course students will be invited to also participate in the Engineers without Borders Challenge which is a humanitarian-focused activity offered in all UC engineering honours degrees.

To ensure our students have access to the right people and places, UC works hard to foster close industry connections and regularly engages with industry partners who possess both the skills and experience to provide specialised knowledge and training opportunities.

All course content is reviewed annually by our Course Advisory Group which is made up of a panel of highly qualified and respected industry experts.

Career opportunities

Whether you're pursuing a career in robotics and AI, or wish to specialise in Network and Software Engineering, The UC Bachelor of Engineering (Honours) offers a natural progression into any one of the following careers:

- cyber security engineer
- network architect
- chief technology officer
- artificial intelligence engineer
- robotics engineer
- data scientist
- business intelligence analyst
- data analyst
- software engineer
- network engineer
- ICT manager

Professional accreditation

This course will pursue accreditation with Engineers Australia at Professional Engineer level and also with the Australian Computer Society at Professional level.

Admission requirements

Admission to this course is based on an entrance rank. A rank can be achieved by the following means:

- Year 12 ATAR
- other Australian Qualification
- work experience
- overseas qualification

We also offer a number of entry initiatives that give you the opportunity to gain entry to the University via alternate pathway programs and admissions schemes.

More information is available on our Alternative Entry page: <http://www.canberra.edu.au/future-students/applications/apply-now/alternative-entry>

Assumed knowledge

Basic knowledge and skills in ICT (Information and Communication Technology); Basic numeracy and literacy skills.

Periods course is open for new admissions

Year	Location	Teaching period	Teaching start date	Domestic	International
2023	UC - Canberra, Bruce	Semester 1	06 February 2023	✓	✓
2023	UC - Canberra, Bruce	Semester 2	31 July 2023	✓	✓
2024	UC - Canberra, Bruce	Semester 1	05 February 2024	✓	✓
2024	UC - Canberra, Bruce	Semester 2	29 July 2024	✓	✓

Credit arrangements

A credit transfer arrangement is available for this course for the following institutions:

Chandigarh University

[Bach of Computer Applications \(27336\)](#)

[Bachelor of Computer Applications \(27335\)](#)

Course requirements

Bachelor of Engineering (Honours) (ETB001) | 96 credit points

Required - 48 credit points as follows

Core Major in Engineering (CM0009) | 48 credit points

Required - Must pass 48 credit points as follows

[Introduction to Information Technology \(4478\) | 3 credit points – Level 1](#)

[Discrete Mathematics \(6698\) | 3 credit points – Level 1](#)

[Introduction to Computer Engineering \(8223\) | 3 credit points – Level 1](#)

[Electronics Systems \(8224\) | 3 credit points – Level 1](#)

[Signals and Systems \(8235\) | 3 credit points – Level 3](#)

Technology and Engineering Management (9789) | 3 credit points – Level 3
ICT and Engineering Research Methods (9826) | 3 credit points – Level 4
Digital Signal Processing (10003) | 3 credit points – Level 3
Engineering Project (Part A) (10004) | 6 credit points – Level 4
Engineering Project (Part B) (10005) | 6 credit points – Level 4
Engineering Mathematics (10087) | 3 credit points – Level 1
Technological Innovation and Entrepreneurship (11408) | 3 credit points – Level 2
Introduction to Network Engineering (11485) | 3 credit points – Level 1
Professional Practice in Engineering (11519) | 3 credit points – Level 1

Restricted Choice - Must select 1 of the following

Specialist Major in Network and Software Engineering (SM0061) | 36 credit points

Required - Must pass 33 credit points as follows

Software Technology 1 (4483) | 3 credit points – Level 1
Database Design (5915) | 3 credit points – Level 1
Software Technology 2 (7170) | 3 credit points – Level 2
Web Design and Programming (7175) | 3 credit points – Level 2
Computer and Network Security (8019) | 3 credit points – Level 3
Wireless Networks (8227) | 3 credit points – Level 2
Enterprise and Cloud Computing (9281) | 3 credit points – Level 3
Network Architecture (11484) | 3 credit points – Level 3
Systems Analysis and Modelling (11486) | 3 credit points – Level 1
System Software (11489) | 3 credit points – Level 3
Mobile Technologies (11492) | 3 credit points – Level 3

Restricted Choice - Must pass 3 credit points from the following

High Speed Networks (9783) | 3 credit points – Level 4
Internet of Things (11511) | 3 credit points – Level 3

Note:

- Students who wish to have work experience formally recorded and assessed can choose to enrol in 10006 Engineering Work Experience (0cp).

Specialist Major in Robotics and AI (Engineering) (SM0062) | 36 credit points

Required - Must pass 36 credit points as follows

Software Technology 1 (4483) | 3 credit points – Level 1
Database Design (5915) | 3 credit points – Level 1
Designing Human-Computer Interaction (6389) | 3 credit points – Level 2
Soft Computing (7168) | 3 credit points – Level 3
Wireless Networks (8227) | 3 credit points – Level 2
Foundations of Robotics (11370) | 3 credit points – Level 2
Computer Vision and Image Analysis (11376) | 3 credit points – Level 3
Advanced Robotics (11479) | 3 credit points – Level 3

Pattern Recognition and Machine Learning (11482) | 3 credit points – Level 3

Network Architecture (11484) | 3 credit points – Level 3

Systems Analysis and Modelling (11486) | 3 credit points – Level 1

Internet of Things (11511) | 3 credit points – Level 3

Note:

- Students who wish to have work experience formally recorded and assessed can choose to enrol in 10006 Engineering Work Experience (Ocp).

- The course award is determined by the selected specialist major. E.g. Completing the Robotics & AI major leads to the Bachelor of Engineering (Honours) in Robotics & AI award name.

Open Electives - 12 credit points as follows

- - Must pass 12 credit points from anywhere in the University.

In addition to course requirements, in order to successfully complete your course you may need to meet the inherent requirements. Please refer to the [inherent requirements statement](#) applicable to your course

Typical study pattern

UC - Canberra, Bruce

Network and Software Engineering Specialisation - Full Time, Sem 1 2020 Commencing

Year 1

Semester 1

Database Design (5915)

Engineering Mathematics (10087)

Introduction to Information Technology (4478)

Introduction to Network Engineering (11485)

Semester 2

Discrete Mathematics (6698)

Introduction to Computer Engineering (8223)

Professional Practice in Engineering (11519)

Software Technology 1 (4483)

Year 2

Semester 1

Electronics Systems (8224)

Mobile Technologies (11492)

Software Technology 2 (7170)

Wireless Networks (8227)

Semester 2

Signals and Systems (8235)

Systems Analysis and Modelling (11486)

Technological Innovation and Entrepreneurship (11408)

Web Design and Programming (7175)

Year 3

Semester 1

Digital Signal Processing (10003)

System Software (11489)

Technology and Engineering Management (9789)

Internet of Things (11511) OR High Speed Networks (9783)

Semester 2

Two Open Electives

Computer and Network Security (8019)

Network Architecture (11484)

Year 4

Semester 1

Engineering Project (Part A) (10004)
Enterprise and Cloud Computing (9281)
ICT and Engineering Research Methods (9826)

Semester 2

Engineering Project (Part B) (10005)
Two Open Electives

Network and Software Engineering Specialisation - Full Time, Sem 1 Commencing

Year 1

Semester 1

Database Design (5915)
Engineering Mathematics (10087)
Introduction to Information Technology (4478)
Introduction to Network Engineering (11485)

Semester 2

Discrete Mathematics (6698)
Introduction to Computer Engineering (8223)
Professional Practice in Engineering (11519)
Software Technology 1 (4483)

Year 2

Semester 1

Electronics Systems (8224)
Mobile Technologies (11492)
Software Technology 2 (7170)
Technological Innovation and Entrepreneurship (11408)

Semester 2

Systems Analysis and Modelling (11486)
Web Design and Programming (7175)
Two Open Electives

Year 3

Semester 1

Digital Signal Processing (10003)
System Software (11489)
Technology and Engineering Management (9789)
Wireless Networks (8227)

Semester 2

Computer and Network Security (8019)
Network Architecture (11484)
Signals and Systems (8235)
Internet of Things (11511) OR High Speed Networks (9783)

Year 4

Semester 1

Engineering Project (Part A) (10004)
Enterprise and Cloud Computing (9281)
ICT and Engineering Research Methods (9826)

Semester 2

Engineering Project (Part B) (10005)
Two Open Electives

Network and Software Engineering Specialisation - Full Time, Sem 2 Commencing

Year 1

Semester 2

Discrete Mathematics (6698)

Introduction to Computer Engineering (8223)

Professional Practice in Engineering (11519)

Software Technology 1 (4483)

Year 2

Semester 1

Database Design (5915)

Engineering Mathematics (10087)

Introduction to Information Technology (4478)

Introduction to Network Engineering (11485)

Semester 2

Technological Innovation and Entrepreneurship (11408)

Open Elective

Systems Analysis and Modelling (11486)

Web Design and Programming (7175)

Year 3

Semester 1

Software Technology 2 (7170)

Internet of Things (11511) OR High Speed Networks (9783) Open Elective

Electronics Systems (8224)

Mobile Technologies (11492)

Semester 2

Signals and Systems (8235)

Open Elective

Computer and Network Security (8019)

Network Architecture (11484)

Year 4

Semester 1

Digital Signal Processing (10003)

System Software (11489)

Technology and Engineering Management (9789)

Wireless Networks (8227)

Semester 2

ICT and Engineering Research Methods (9826)

Open Elective

Engineering Project (Part A) (10004)

Year 5

Semester 1

Engineering Project (Part B) (10005)

Open Elective

Enterprise and Cloud Computing (9281)

Robotics and Artificial Intelligence Specialisation - Full Time, Sem 1 2020 Commencing

Year 1

Semester 1

Semester 2

Database Design (5915)
Engineering Mathematics (10087)
Introduction to Information Technology (4478)
Introduction to Network Engineering (11485)

Discrete Mathematics (6698)
Introduction to Computer Engineering (8223)
Professional Practice in Engineering (11519)
Software Technology 1 (4483)

Year 2

Semester 1

Designing Human-Computer Interaction (6389)
Electronics Systems (8224)
Foundations of Robotics (11370)
Open Elective

Semester 2

Signals and Systems (8235)
Systems Analysis and Modelling (11486)
Technological Innovation and Entrepreneurship (11408)
Open Elective

Year 3

Semester 1

Digital Signal Processing (10003)
Internet of Things (11511)
Technology and Engineering Management (9789)
Wireless Networks (8227)

Semester 2

Open Elective
Advanced Robotics (11479)
Network Architecture (11484)
Soft Computing (7168)

Year 4

Semester 1

Computer Vision and Image Analysis (11376)
Engineering Project (Part A) (10004)
ICT and Engineering Research Methods (9826)

Semester 2

Engineering Project (Part B) (10005)
Pattern Recognition and Machine Learning (11482)
Open Elective

Robotics and Artificial Intelligence Specialisation - Full Time, Sem 1 Commencing

Year 1

Semester 1

Database Design (5915)
Engineering Mathematics (10087)
Introduction to Information Technology (4478)
Introduction to Network Engineering (11485)

Semester 2

Discrete Mathematics (6698)
Introduction to Computer Engineering (8223)
Professional Practice in Engineering (11519)
Software Technology 1 (4483)

Year 2

Semester 1

Designing Human-Computer Interaction (6389)
Electronics Systems (8224)

Semester 2

Three Open Electives
Systems Analysis and Modelling (11486)

Foundations of Robotics (11370)

Technological Innovation and Entrepreneurship (11408)

Year 3

Semester 1

Digital Signal Processing (10003)

Internet of Things (11511)

Technology and Engineering Management (9789)

Wireless Networks (8227)

Semester 2

Advanced Robotics (11479)

Network Architecture (11484)

Signals and Systems (8235)

Soft Computing (7168)

Year 4

Semester 1

Computer Vision and Image Analysis (11376)

Engineering Project (Part A) (10004)

ICT and Engineering Research Methods (9826)

Semester 2

Engineering Project (Part B) (10005)

Pattern Recognition and Machine Learning (11482)

Open Elective

Robotics and Artificial Intelligence Specialisation - Full Time, Sem 2 Commencing

Year 1

Semester 2

Discrete Mathematics (6698)

Introduction to Computer Engineering (8223)

Professional Practice in Engineering (11519)

Software Technology 1 (4483)

Year 2

Semester 1

Database Design (5915)

Engineering Mathematics (10087)

Introduction to Information Technology (4478)

Introduction to Network Engineering (11485)

Semester 2

Signals and Systems (8235)

Systems Analysis and Modelling (11486)

Technological Innovation and Entrepreneurship (11408)

Open Elective

Year 3

Semester 1

Designing Human-Computer Interaction (6389)

Electronics Systems (8224)

Foundations of Robotics (11370)

Internet of Things (11511)

Semester 2

Advanced Robotics (11479)

Network Architecture (11484)

Pattern Recognition and Machine Learning (11482)

Open Elective

Year 4

Semester 1

Open Elective

Digital Signal Processing (10003)

Technology and Engineering Management (9789)

Wireless Networks (8227)

Semester 2

Engineering Project (Part A) (10004)

ICT and Engineering Research Methods (9826)

Soft Computing (7168)

Year 5

Semester 1

Engineering Project (Part B) (10005)

Open Elective

Computer Vision and Image Analysis (11376)

Course information

Course duration

Standard 4 years full time, or part time equivalent. Maximum - 10 years.

Learning outcomes

Learning outcomes	Related graduate attributes
Demonstrate advanced knowledge of contextual factors, research direction, and underpinning information impacting the engineering discipline, including risk identification and management, and design and implement design metrics and alternatives, systems measurement, simulation, modelling and analysis, and environmental constraints and safety issues.	<p>UC graduates are professional: Employ up-to-date and relevant knowledge and skills; communicate effectively; work collaboratively as part of a team, negotiate, and resolve conflict; display initiative and drive, and use their organisational skills to plan and manage their workload; and take pride in their professional and personal integrity.</p> <p>UC graduates are global citizens: Think globally about issues in their profession; understand issues in their profession from the perspective of other cultures; communicate effectively in diverse cultural and social settings; make creative use of technology in their learning and professional lives; and behave ethically and sustainably in their professional and personal lives.</p> <p>UC graduates are lifelong learners: Be self-aware; and adapt to complexity, ambiguity and change by being flexible and keen to engage with new ideas.</p>

Demonstrate an understanding of contemporary engineering, including the role of standards and the need for the continuing professional development of engineers, and identify, formulate, solve and manage innovative

UC graduates are professional: Employ up-to-date and relevant knowledge and skills; communicate effectively; use creativity, critical thinking, analysis and research skills to solve theoretical and real-world

methods in the context of solving a complex problem involving the development of new knowledge.

problems; display initiative and drive, and use their organisational skills to plan and manage their workload; and take pride in their professional and personal integrity.

UC graduates are global citizens: Think globally about issues in their profession; adopt an informed and balanced approach across professional and international boundaries; understand issues in their profession from the perspective of other cultures; communicate effectively in diverse cultural and social settings; make creative use of technology in their learning and professional lives; and behave ethically and sustainably in their professional and personal lives.

UC graduates are lifelong learners: reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development; be self-aware; adapt to complexity, ambiguity and change by being flexible and keen to engage with new ideas; and evaluate and adopt new technology.

Understand and proficiently apply the relevant sciences and scientific methods in network and software engineering practice area, to design solutions to complex problems.

UC graduates are professional: Work collaboratively as part of a team, negotiate, and resolve conflict; and take pride in their professional and personal integrity.

Identify, interpret and critically appraise current developments and advanced technologies and apply knowledge of these to network and software engineering area.

UC graduates are professional: Employ up-to-date and relevant knowledge and skills; communicate effectively; use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems; and display initiative and drive, and use their organisational skills to plan and manage their workload.

UC graduates are global citizens: Think globally about issues in their profession; adopt an informed and balanced approach across professional and international boundaries; make creative use of technology in their learning and professional lives; and behave ethically and sustainably in their professional and personal lives.

UC graduates are lifelong learners: Reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development; adapt to complexity, ambiguity and change by being flexible and keen to engage with new ideas; and evaluate and adopt new technology.

Research, identify, conceptualise, investigate, and interpret knowledge from modern network and software engineering tools and techniques to synthesise a coherent approach to the solution of a problem and/or the design of a project.

UC graduates are professional: Employ up-to-date and relevant knowledge and skills; work collaboratively as part of a team, negotiate, and resolve conflict; and display initiative and drive, and use their

organisational skills to plan and manage their workload.

UC graduates are global citizens: Think globally about issues in their profession; adopt an informed and balanced approach across professional and international boundaries; and make creative use of technology in their learning and professional lives.

UC graduates are lifelong learners: Reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development; adapt to complexity, ambiguity and change by being flexible and keen to engage with new ideas; and evaluate and adopt new technology.

Majors

- [Specialist Major in Network and Software Engineering \(SM0061\)](#)
- [Specialist Major in Robotics and AI \(Engineering\) \(SM0062\)](#)
- [Core Major in Engineering \(CM0009\)](#)

Awards

Award	Official abbreviation
Bachelor of Engineering (Honours) in Robotics and Artificial Intelligence	BE (Hons) Robotics&AI
Bachelor of Engineering (Honours) in Network and Software Engineering	BE (Hons) Network&SE

Honours

The Bachelor of Engineering (Honours) is an Honours degree. The Honours merit calculation will be based on the Grade Point Average (GPA) obtained in the units in year three and four of the recommended study plan and other conditions. - First Class: Course GPA>6, and High Distinction in Engineering Project (Part A) and Engineering Project (Part B); - Second Class Division I: Course GPA>5.25, and Distinction in Engineering Project (Part A) and Engineering Project (Part B); - Second Class Division II: Course GPA>4.5, and Credit in Engineering Project (Part A) and Engineering Project (Part B). - The rest of students who pass the course take out honours without a class.

Enrolment data

2020 enrolments for this course by location. Please note that enrolment numbers are indicative only and in no way reflect individual class sizes.

Location	Enrolments
UC - Canberra, Bruce	22

Enquiries

Student category	Contact details
------------------	-----------------

Prospective Domestic Students	Email study@canberra.edu.au or Phone 1800 UNI CAN (1800 864 226)
Prospective International Students	Email international@canberra.edu.au or Phone +61 2 6201 5342
Current and Commencing Students	In person, Student Centre Building 1 or Email Student.Centre@canberra.edu.au

Printed on 27, October, 2021

University of Canberra, Bruce ACT 2617 Australia

+61 2 6201 5111

ABN 81 633 873 422

CRICOS 00212K

UC acknowledges the Ngunnawal people, traditional custodians of the lands where Bruce campus is situated. We wish to acknowledge and respect their continuing culture and the contribution they make to the life of Canberra and the region. We also acknowledge all other First Nations Peoples on whose lands we gather.