UNIVERSITY OF CANBERRA

Bachelor of Engineering (Honours) (ETB001.2)

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.
Delivery mode	Blended
Location	Bruce, Canberra
Duration	4.0 years
Faculty	Faculty of Science and Technology
Discipline	Academic Program Area - Technology
UAC code	365016
English language requirements	An IELTS Academic score of 6.5 overall, with no band score below 6.0 (or equivalent). View IELTS equivalences

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
Delivery mode	Blended
Location	Bruce, Canberra
Duration	4.0 years
Faculty	Faculty of Science and Technology
Discipline	Academic Program Area - Technology
CRICOS code	099434M
English language requirements	An IELTS Academic score of 6.5 overall, with no band score below 6.0 (or equivalent). View IELTS equivalences

About this course

Engineer the future to solve the unimaginable

Draw on your love for critical thinking and become an innovative problem solver for a brighter tomorrow with UC's highly respected Bachelor of Engineering (Honours). Over four years, you'll gain knowledge, skills and experience and specialise in Robotics and Artificial Intelligence or Network Engineering.

- Robotics & Artificial Intelligence – discover conceptual grounding in intelligent systems with the opportunity to apply theoretical knowledge in a practical setting through direct access to our collaborative robotics lab, a hub for industry-lead, cutting edgement development and research work in robotics.
- Network Engineering – gain in-depth knowledge and skills in designing, developing and operating 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 the knowledge and skills that are highly desirable within 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
- participate in numerous Work Integrated Learning (WIL) opportunities and share your own ideas during site visits and

fieldwork

- learn professional ideologies such as professional ethics, expectations and teamwork
- choose to specialise in either Robotics and Artificial Intelligence or Network Engineering
- be able to participate in the Engineers without Borders Challenge
- gain unrivalled access to industry and government stakeholders and build extensive professional networks
- earn a globally recognised and in-demand qualification

Work Integrated Learning (WIL)

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

Students will also be invited to participate in the Engineers without Borders Challenge, a humanitarian-focused activity offered to engineering students across Australia.

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 comprises 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 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 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

Additional admission requirements

Year 12 Mathematical Methods (T) or equivalent.

Assumed knowledge

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

Periods course is open for new admissions

This course is not open for new admissions.

Credit arrangements

There are currently no formal credit transfer arrangements for entry to this course. Any previous study or work experience will only be considered as part of the application process in accordance with current course rules and university policy.

Course requirements

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

Expand All | Collapse All

Required - 57 credit points as follows

Core Major in Engineering (57cp) (CM0032) | 57 credit points

Required - Must pass 57 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

Information & Communication Technology Project (9785) | 6 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 Work Experience (0cp) (10006) | 0 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

Introduction to Cyber Security (11906) | 3 credit points — Level 1

Restricted Choice - Must select 1 of the following

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

Specialist Major in Network Engineering (SM0087) | 33 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

Wireless Networks (8227) | 3 credit points — Level 2

Enterprise and Cloud Computing (9281) | 3 credit points — Level 3

High Speed Networks (9783) | 3 credit points — Level 4

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

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

Software Systems Architecture (11491) | 3 credit points — Level 3

Mobile Technologies (11492) | 3 credit points — Level 3

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

Advanced Cyber Security (11907) | 3 credit points — Level 3

- 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 - Must pass between 3 and 6 credit points as follows

- Network Engineering Specialisation: Students must pass 6 credit points from anywhere in the University.
- Robotics and AI Specialisation: Students must pass 3 credit points from anywhere in the University.

In addition to course requirements, in order to successfully complete your course you must meet the inherent requirements. Please refer to the inherent requirements statement applicable to your course

Typical study pattern

UC - Canberra, Bruce

Standard Full Time, Semester 1 Commencing with Network Engineering Specialisation

Year 1

Semester 1

Database Design (5915)

Discrete Mathematics (6698)

Introduction to Information Technology (4478)

Introduction to Network Engineering (11485)

Semester 2

Engineering Mathematics (10087)

Introduction to Computer Engineering (8223)

Introduction to Cyber Security (11906)

Professional Practice in Engineering (11519)

Year 2

Semester 1

Electronics Systems (8224)

High Speed Networks (9783)

Mobile Technologies (11492)

Software Technology 1 (4483)

Semester 2

Network Architecture (11484)

Signals and Systems (8235)

Systems Analysis and Modelling (11486)

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 Cyber Security (11907)

Information & Communication Technology Project (9785)

Software Systems Architecture (11491)

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)

Engineering Work Experience (0cp) (10006)

Two Open Electives

Standard Full Time, Semester 2 Commencing with Network Engineering Specialisation

Year 1

Semester 2

Discrete Mathematics (6698)

Introduction to Computer Engineering (8223)

Introduction to Cyber Security (11906)

Professional Practice in Engineering (11519)

Year 2

Semester 1

Database Design (5915)

Engineering Mathematics (10087)

Introduction to Information Technology (4478)

Introduction to Network Engineering (11485)

Semester 2

Network Architecture (11484)

Signals and Systems (8235)

Systems Analysis and Modelling (11486)

Technological Innovation and Entrepreneurship (11408)

Year 3

Semester 1

Electronics Systems (8224)

High Speed Networks (9783)

Mobile Technologies (11492)

Software Technology 1 (4483)

Semester 2

Advanced Cyber Security (11907)

Information & Communication Technology Project (9785)

Software Systems Architecture (11491)

Year 4

Semester 1

Digital Signal Processing (10003)

Internet of Things (11511)

Technology and Engineering Management (9789)

Wireless Networks (8227)

Semester 2

Engineering Project (Part A) (10004)

ICT and Engineering Research Methods (9826)

Open Elective

Year 5

Semester 1

Engineering Project (Part B) (10005)

Engineering Work Experience (0cp) (10006)

Enterprise and Cloud Computing (9281)

Open Elective

Course information

Course duration

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

Learning outcomes

Learning outcomes	Related graduate attributes
Demonstrate advanced knowledge of contextual factors, research direction, and underpinning information	UC graduates are professional: Employ up-to-date and relevant

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.	knowledge and skills; communicate effectively; use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems; 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; 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; 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; evaluate and adopt new technology.
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 methods in the context of solving a complex problem involving the development of new knowledge.	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; 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; 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; 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; evaluate and adopt new technology.
Understand and proficiently apply the relevant sciences and scientific methods in engineering specialisation area, to design solutions to complex problems.	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; 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; 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; 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; evaluate and adopt new technology.
Identify, interpret and critically appraise current developments and advanced technologies and apply knowledge of these to engineering specialisation 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; 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; 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; 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; evaluate and adopt new technology.
Research, identify, conceptualise, investigate, and interpret knowledge from modern engineering specialisation 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; communicate effectively; use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems; 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; take pride in their professional and personal integrity. 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; 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; evaluate and adopt new technology.

Placements requirements

450 hours of practical work experience, which can be reduced by participation in CPD, professional practice units and other practical experiences in alignment with Engineers Australia requirements.

Majors

- Core Major in Engineering (57cp) (CM0032)
- Specialist Major in Network Engineering (SM0087)
- Specialist Major in Robotics and AI (Engineering) (SM0062)

Awards

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

Honours

The Bachelor of Engineering in Network and Software Engineering (Honours) is an Honours degree. The Honours merit calculation will be based on the Honours Grade Point Average (Honours GPA) defined as the GPA in the required UG Level 3 and Level 4 units of the course and other conditions:

- First Class: Honours GPA >6, and High Distinction in Engineering Project (Part A) and Engineering Project (Part B);
- Second Class Division I: Honours GPA >5.25, and Distinction in Engineering Project (Part A) and Engineering Project (Part B);
- Second Class Division II: Honours 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.

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

Download your course guide

Scholarships

Find the scholarship that's the right fit for you

Explore Scholarships

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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.