UNIVERSITY OF CANBERRA

Bachelor of Engineering in Network and Software Engineering (Honours) (344JA.1)

Please note these are the 2022 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	366054
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 enrols. 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	089802G
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 enrols. Information on how fees are calculated can be found here.

About this course
Engineer your perfect career from the ground up

If you're dreaming of a career developing innovative software solutions to solve complex problems, then the UC Bachelor of Engineering Network Software Engineering (Honours) course is the perfect chance to learn the necessary skills to design and build your perfect career from the ground up.

Integrating the fields of network engineering, software engineering, electronics and information technology, this four-year honours degree will see you explore a wide range of specialised subject areas and teach you coding strategies and secrets enabling you to become proficient in reading, writing and developing code at all levels.

Packed with Work Integrated Learning (WIL) opportunities, this course also offers you the chance to complete both an industry-oriented engineering project and a professional internship which means you will have the opportunity to gain practical experience and implement theoretical ideas in real world situations.

Combined these experiences will give you a thorough, accurate appreciation of the information and telecommunications industry, while teaching you skills to confidently secure a future in an ever-developing industry.

This course is also accredited by both Engineers Australia and the Australian Computer Society (ACS).

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

- acquire in-depth knowledge and skills on the design, development and implementation of a range of software-based systems over a variety of communication network infrastructures
- be able to read, write and engineer innovative software solutions at all levels
- work on individual and team-based projects
- learn the professional skills to work within a corporate business environment
- gain technical skills in data communications and networking, mobile and wireless communications, network security, and the networked applications and services relating to cloud computing, big data and multimedia
- design, implement and operate communication networks and their associated services and applications
- apply cross-cutting skills to the design and management of networked projects in a wide range of sectors
- graduate with a globally recognised qualification.

Work Integrated Learning (WIL)

Work-integrated learning (WIL) is an integral component of the Bachelor of Engineering in Network Software Engineering (Honours) journey as it gives 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 you will also have the opportunity to undertake a minimum of 12 weeks of professional work placement and work alongside industry specialists in a range of businesses such as: Intelledox, Omni Executive, Pursuit Technology, Qirx, Fujitsu Australia, Birdsnest, Agsafe, ThoughtPatterns Consulting, ESKAPEE, HydroAlgorithmics, ALLBIDS, VerveEd.com, Emanate Technology, Xero Australia and the Australian Taxation Office.

In your final year, you will also get to complete a capstone research project, producing and implementing an engineering solution for a local business, government or community organisation.

This practical, hands on approach encourages professional development while stimulating networking opportunities and ultimately insuring that you are armed with the right mix of skills, knowledge and experience to move confidently into professional employment once you graduate.

Career opportunities

The UC Bachelor of Engineering in Network Software Engineering (Honours) is a globally recognised qualifications that help you build a future career in any one of the following positions:

- Software engineer
- Network engineer
- Robotics engineer
- Software and Games developer
- Data scientist
- Artificial intelligence/machine learning engineer
- ICT consultant
- Database administrator
- Cyber security specialist/forensics
- IT test engineer
- System administrator

Course-specific information

This course is fully accredited by Engineers Australia at Professional Engineer level, and also at Professional level by the Australian Computer Society.

UC prides itself on fostering close industry connections, with the course content reviewed annually by our Course Advisory Group, made up of a panel of industry experts, and collaborations with industry partners who can provide you with internship positions and training opportunities.

Professional accreditation

This course is fully accredited by Engineers Australia at Professional Engineer level and also by 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

Specialist Maths (Recommended) (T) or Mathematical Methods (T), or equivalent.

Periods course is open for new admissions

Year	Location	Teaching period	Teaching start date	Domestic	International
2022	UC - Canberra, Bruce	Semester 1	07 February 2022	✓	✓
2022	UC - Canberra, Bruce	Semester 2	01 August 2022	✓	✓
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:

Amity University

Bachelor of Technology (Computer Science & Engineering) (22310)

Chandigarh University

Bachelor of Computer Applications (27314)

Bachelor of Engineering (Computer Science & Engineering) (24250)

Melbourne College Of Advanced Studies

Bachelor Qualifying Program (BQP) Business Course (Completion of one semester's study) (26393)

Bachelor Qualifying Program (BQP) Business Course (Completion of two semester's study) (26014)

Bachelor Qualifying Program (BQP) Engineering Course (Completion of 1st Semester) (26774)

Bachelor Qualifying Program (BQP) Engineering Course (two semesters study with EE1 and EE2) (26073)

Bachelor Qualifying Program (BQP) Engineering Course (two semesters study without EE1 and EE2) (26053)

Bachelor Qualifying Program (BQP) Science-IT Course (Completion of 1st Semester) (26796)

Bachelor Qualifying program (BQP) Science-IT Course (26313)

Shanghai Institute Of Technology

Undergraduate Studies (18693)

University Of Mumbai Affiliated Institutions

Bachelor of Computer Engineering (24030)

Bachelor of Science (Information Technology) (16750)

Course requirements

Bachelor of Engineering in Network and Software Engineering (Honours) (344JA) | 96 credit points

Required - 81 credit points as follows

Major in Network Engineering (MJ0262) | 18 credit points

Required - Must pass 18 credit points as follows

Software Technology 1 (4483) | 3 credit points — Level 1

Computer and Network Security (8019) | 3 credit points — Level 3

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

Introduction to Network Engineering (8741) | 3 credit points — Level 2

Network Architecture (9428) | 3 credit points — Level 4

Technology and Engineering Management (9789) | 3 credit points — Level 3

Note:

- From 2019 the unit code for 8741 Introduction to Network Engineering has changed to 11485 and for 9428 Network Architecture to 11484.

Required Units - Must pass 63 credit points as follows

Introduction to Information Technology (4478) | 3 credit points — Level 1

Database Design (5915) | 3 credit points — Level 1

Systems Analysis and Modelling (6365) | 3 credit points — Level 2

Discrete Mathematics (6698) | 3 credit points — Level 1

Software Technology 2 (7170) | 3 credit points — Level 2

System Software (7171) | 3 credit points — Level 2

Web Design and Programming (7175) | 3 credit points — Level 2

Introduction to Computer Engineering (8223) | 3 credit points — Level 1

Electronics Systems (8224) | 3 credit points — Level 1

Engineering Management 2A (8228) | 3 credit points — Level 2

Communication Theory (8233) | 3 credit points — Level 3

Signals and Systems (8235) | 3 credit points — Level 3

Mobile Technologies (8878) | 3 credit points — Level 2

Contemporary IT & E Issues (9788) | 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

- 1. The unit Engineering Work Experience is for the recording & assessment of work experience, & has no credit points. Students should enrol into the unit when conducting the work experience.

- 2. A minimum of 12 weeks of professional work experience, normally undertaken at the end of the third year of full-time study (or part-time equivalent), is required by Engineers Australia.

- 3. From 2019 the unit code for Systems Analysis and Modelling has changed to 11486, for System Software to 11489 and for Mobile Technologies to 11492.

Restricted Choice - 9 credit points as follows

Distributed Systems Technology (7159) | 3 credit points — Level 3

Game Programming Techniques (7160) | 3 credit points — Level 3

Object Oriented Software Design (7165) | 3 credit points — Level 3

Security and Support in IT (7167) | 3 credit points — Level 2

Soft Computing (7168) | 3 credit points — Level 3

System Testing (7172) | 3 credit points — Level 3

Visual and Interactive Computing (7174) | 3 credit points — Level 3

- From 2019 the unit code for Security & Support in IT has changed to 11488 and for Software Systems Architecture to 11491.

- Unit Availability: The availability of restricted choice units may vary each semester.

Advances in Information Sciences 1 (7897) | 3 credit points — Level 3

Advances in Information Sciences 2 (7898) | 3 credit points — Level 3

Information Sciences Internship (7899) | 3 credit points — Level 3

Biometric Person Authentication (8020) | 3 credit points — Level 3

Embedded Systems (8231) | 3 credit points — Level 3

Pattern Recognition (8240) | 3 credit points — Level 4

Optical Communications (8242) | 3 credit points — Level 4

Advanced Wireless Communication (8244) | 3 credit points — Level 4

Software Systems Architecture (8745) | 3 credit points — Level 2

Introduction to Digital Forensics (9074) | 3 credit points — Level 2

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

Client Server Computing (9782) | 3 credit points — Level 4

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

Security and Support in IT (11488) | 3 credit points — Level 1

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

Open Electives - 6 credit points as follows

- Unit Levels: In choosing electives students should note that not more than 30 credit points at Level 1 is permitted for the entire course.

Note:

- Must pass 6 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

Standard Full Time, Semester 1 Commencing

Year 1

Semester 1	**Semester 2**
Database Design (5915)	Discrete Mathematics (6698)
Engineering Mathematics (10087)	Engineering Management 2A (8228)
Introduction to Information Technology (4478)	Introduction to Computer Engineering (8223)
Introduction to Network Engineering (11485)	Software Technology 1 (4483)

Year 2

Semester 1	**Semester 2**
Electronics Systems (8224)	Open Elective Unit
Mobile Technologies (11492)	Signals and Systems (8235)
Software Technology 2 (7170)	Systems Analysis and Modelling (11486)
Wireless Networks (8227)	Web Design and Programming (7175)

Year 3

Semester 1	Semester 2
Open Elective Unit	Communication Theory (8233)
Digital Signal Processing (10003)	Computer and Network Security (8019)
System Software (11489)	Contemporary IT & E Issues (9788)
Technology and Engineering Management (9789)	Network Architecture (11484)

Year 4

Semester 1	Semester 2
Engineering Project (Part A) (10004)	Engineering Project (Part B) (10005)
Engineering Work Experience (0cp) (10006)	
ICT and Engineering Research Methods (9826)	

Standard Full Time, Semester 1 Commencing, From 2019

Year 1

Semester 1	Semester 2
Database Design (5915)	Discrete Mathematics (6698)
Engineering Mathematics (10087)	Engineering Management 2A (8228)
Introduction to Information Technology (4478)	Introduction to Computer Engineering (8223)
Introduction to Network Engineering (11485)	Software Technology 1 (4483)

Year 2

Semester 1	Semester 2
Electronics Systems (8224)	Signals and Systems (8235)
Mobile Technologies (11492)	Systems Analysis and Modelling (11486)
Software Technology 2 (7170)	Open Elective Unit
Wireless Networks (8227)	Web Design and Programming (7175)

Year 3

Semester 1	Semester 2
Digital Signal Processing (10003)	Communication Theory (8233)
System Software (11489)	Computer and Network Security (8019)
Technology and Engineering Management (9789)	Contemporary IT & E Issues (9788)
Open Elective Unit	Network Architecture (11484)

Year 4

Semester 1	Semester 2

Engineering Project (Part A) (10004)

Engineering Project (Part B) (10005)

ICT and Engineering Research Methods (9826)

Standard Full Time, Semester 2 Commencing, From 2019

Year 1

Semester 2

Engineering Management 2A (8228)

Introduction to Computer Engineering (8223)

Introduction to Information Technology (4478)

Introduction to Network Engineering (11485)

Year 2

Semester 1	**Semester 2**
Database Design (5915)	Engineering Mathematics (10087)
Discrete Mathematics (6698)	Signals and Systems (8235)
Software Technology 1 (4483)	Web Design and Programming (7175)
Systems Analysis and Modelling (11486)	Open Elective Unit

Year 3

Semester 1	**Semester 2**
Electronics Systems (8224)	Communication Theory (8233)
Mobile Technologies (11492)	Computer and Network Security (8019)
Software Technology 2 (7170)	Contemporary IT & E Issues (9788)
Wireless Networks (8227)	Network Architecture (11484)

Year 4

Semester 1	**Semester 2**
Digital Signal Processing (10003)	Engineering Project (Part A) (10004)
System Software (11489)	ICT and Engineering Research Methods (9826)
Technology and Engineering Management (9789)	

Year 5

Semester 1

Open Elective Unit

Engineering Project (Part B) (10005)

Standard Full-Time, Semester 2 Commencing

Year 1

Semester 2

Engineering Management 2A (8228)

Introduction to Computer Engineering (8223)

Introduction to Information Technology (4478)

Introduction to Network Engineering (11485)

Year 2

Semester 1	**Semester 2**
Database Design (5915)	Engineering Mathematics (10087)
Discrete Mathematics (6698)	Web Design and Programming (7175)
Software Technology 1 (4483)	Open Elective Unit
Systems Analysis and Modelling (11486)	Signals and Systems (8235)

Year 3

Semester 1	**Semester 2**
Electronics Systems (8224)	Communication Theory (8233)
Mobile Technologies (11492)	Computer and Network Security (8019)
Software Technology 2 (7170)	Contemporary IT & E Issues (9788)
Wireless Networks (8227)	Network Architecture (11484)

Year 4

Semester 1	**Semester 2**
Digital Signal Processing (10003)	Engineering Project (Part A) (10004)
System Software (11489)	Engineering Work Experience (0cp) (10006)
Technology and Engineering Management (9789)	ICT and Engineering Research Methods (9826)

Year 5

Semester 1

Engineering Project (Part B) (10005)

Open Elective Unit

Course information

Course duration

Standard eight semesters full-time or equivalent. Maximum twenty four semesters.

Learning outcomes

Learning outcomes	Related graduate attributes
Demonstrate advanced understanding of telecommunications and software engineering principles to architect, develop and operate communication networks and the associated services and applications assuring the appropriate security and quality mechanisms.	Knowledge and underlying principles and concepts in the engineering discipline, which are the basis for independent lifelong learning.
Demonstrate advanced knowledge of the underpinning mathematics, computer and information fundaments applicable to the engineering discipline.	Comprehensive, theory based understanding of the underpinning sciences and engineering fundamentals.
Develop a functional specification from an initial brief, evaluate the various design options available to meet a given set of technical requirements, formulate a final design specification, and demonstrate how to implement and test the preferred option.	Ability to gather information, analyse and evaluate information and situations in a systematic, creative and insightful way.
Determine which engineering principles are appropriate to use in the solution of complex technological problems in the field of information engineering.	Ability to apply problem¿solving processes in novel situations; identify, analyse problems then formulate, implement solutions.
Demonstrate an understanding of the professional engineering environment including appropriate team working skills, leadership, professional communication, and engineering workplace ethics, responsibilities and sustainability.	Capacity and intention to use professional knowledge and skills ethically and responsibly, for the benefit of others and the environment.
Apply systematic approaches to the conduct and management of engineering projects.	Ability to plan own work, be self¿directed, and use interpersonal skills and attitudes to work collaboratively.
Communicate effectively in oral and written form to professional and wider audiences.	Ability to present knowledge, ideas and opinions effectively and communicate within and across professional and cultural boundaries.
Design, implement and maintain software and network communication systems, using contemporary engineering practices and research skills.	Technical skills for the design, implementation and maintenance of software and network communication systems.

Participate in the processes of business analysis of systems, and appreciate entrepreneurial approaches in engineering practice.	Professional skills for the development of the engineering activity within a broad business context.
Apply relevant theories and techniques of data communication networks and software engineering to the analysis and solution of technological problems in the merging software and telecommunication industry, such as those encountered in the Commonwealth Public Service, major telecommunications companies and national and international software and networking industry companies.	Ability to apply relevant theories, techniques and engineering strengths to the analysis, design, construction and maintenance of systems in network communications and software engineering.
Demonstrate the ability to transfer and enhance the knowledge and skills acquired during the course to new or complementary areas of engineering and technology through the establishment of continuing professional development plans and career goal planning, key for lifelong learning.	Lifelong learning and personal attributes applicable to the evolving technological world.

Majors

- Major in Network Engineering (MJ0262)

Awards

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

Honours

The Bachelor of Engineering in Network and Software 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	139

Enquiries

Student category	Contact details

Current and Commencing Students	Please contact the University Student Centre by Email student.centre@canberra.edu.au or Phone 1300 301 727
Prospective Domestics Students	Please email: study@canberra.edu.au or telephone: 1800 UNI CAN (1800 864 226)
Prospective International Students	Email: international@canberra.edu.au, Tel: +61 2 6201 5342