# UNIVERSITY OF CANBERRA

# Master of Engineering (354JA.2)

Please note these are the 2024 details for this course

## Domestic students

| | |
|---|---|
| **Selection rank** | N/A |
| **Delivery mode** | On campus |
| **Location** | Bruce, Canberra |
| **Duration** | 2.0 years |
| **Faculty** | Faculty of Science and Technology |
| **Discipline** | Academic Program Area - Technology |
| **UAC code** | 880276 |
| **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** | On campus |
| **Location** | Bruce, Canberra |
| **Duration** | 2.0 years |
| **Faculty** | Faculty of Science and Technology |
| **Discipline** | Academic Program Area - Technology |
| **CRICOS code** | 090013E |
| **English language requirements** | An IELTS Academic score of 6.5 overall, with no band score below 6.0 (or equivalent).<br><br>View IELTS equivalences |

# About this course

## Engineer your own career advancement

If you are an existing engineering graduate looking for career progression, then UC's Master of Engineering offers the chance to not only gain an advanced qualification in a field of your choice, but also help put you on the right path to success.

With a strong emphasis on Work Integrated Learning (WIL) and real-world problem solving, this course has been specifically designed to use your existing experience and combine it with a range of new research and practical experiences to enable you to gain the skills to exceed your personal professional objectives.

As part of this course you will also undertake considerable practical work experience which is a unique opportunity designed to expand your knowledge and network base, while simultaneously strengthening your ability to meet the intricate demands of the information and telecommunications industries.

Towards the end of the course you will also get the chance to undertake a major research project, allowing you to create and implement high-quality information systems for use in a real-life practical situation.

This course has been specifically designed to help you graduate with advanced knowledge and skills to confidently and competently assume a senior position within your specialisation – regardless of whether you have chosen a network or software engineering pathway.

## Study a Master of Engineering at UC and you will:

- Gain an advanced understanding of the specialisation (either network engineering or software engineering) including the principles to design, develop, operate and evaluate systems
- Demonstrate a conceptual and comprehensive understanding of mathematics, electronics and signal processing
- Design, implement and evaluate software engineering/network engineering projects which address contemporary and complex issues
- Distinguish which engineering principles are appropriate to use in the solution of complex technological (software/networking) problems
- Creatively apply relevant theories and techniques of data communication networks or software engineering to the interpretation, analysis and solution of technological problems
- Build stronger industry networks
- Graduate with a globally recognised and respected degree

## Work Integrated Learning (WIL)

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

To help encourage on the job learning, UC works hard to foster close industry connections with professional organisations, and as a result, can offer unrivalled access to industry partners with both the knowledge and resources to provide top level work placement positions and training opportunities.

As part of your studies you will be required to undertake a minimum of 12 weeks of professional work placement. Previous internships have taken placement at professional organisations 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 a real-world engineering solution for a local business, government or community organisation.

## Career opportunities

The UC Master of Engineering is an advanced degree that is both globally recognised and industry respected. UC's unique connections within the industry also means that students tend to establish strong, authentic professional relationships long before they actually graduate. This close connection often means that students stand out from the competition and have a higher chance of moving into a career in any one of the following careers:

- Software engineer
- Network engineer
- Software and hardware programmer
- Network and systems administrator
- IT project manager
- Games developer
- Business or systems analyst

- Database programmer
- IoT (Internet of Things) specialist
- ICT security engineer
- Software and network engineering consultant
- Artificial intelligence and machine learning engineer

## Course-specific information

Applicants need to have completed a four-year Bachelor of Engineering degree (or equivalent), or a three-year bachelor's degree accredited by Engineers Australia at a Technologist level (or equivalent), or have completed the following University of Canberra degrees:

- Bachelor of Information Technology
- Bachelor of Software Engineering
- Bachelor of Science with a major in either Software Engineering or Network Engineering.

Accreditation with Engineers Australia at Professional Engineer level is being pursued.

## 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

A 4 year Bachelor of Engineering degree or equivalent, or a 3 year bachelor degree accredited by Engineers Australia at Technologist level or equivalent. Or, graduates from the following University of Canberra degrees: Bachelor of Information Technology, 322AA; or Bachelor of Software Engineering, 560AA; or Bachelor of Science, 392AB with Major in Software Engineering or Network Engineering.

## Assumed knowledge

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

## Periods course is open for new admissions

| Year | Location | Teaching period | Teaching start date | Domestic | International |
|------|----------|-----------------|---------------------|----------|--------------|
| 2025 | Bruce, Canberra | Semester 1 | 03 February 2025 | ✓ | ✓ |
| 2025 | Bruce, Canberra | Semester 2 | 28 July 2025 | ✓ | ✓ |
| 2026 | Bruce, Canberra | Semester 1 | 16 February 2026 | ✓ | ✓ |
| 2026 | Bruce, Canberra | Semester 2 | 10 August 2026 | ✓ | ✓ |

| | | | | | |
|---|---|---|---|---|---|
| 2027 | Bruce, Canberra | Semester 1 | 15 February 2027 | ✓ | ✓ |
| 2027 | Bruce, Canberra | Semester 2 | 09 August 2027 | ✓ | ✓ |

## 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

## Master of Engineering (354JA) | 48 credit points

### Required - Must pass 42 credit points as follows

Expand All | Collapse All

Introduction to Information Technology G (8936) | 3 credit points — Level G

Technology and Engineering Management PG (9784) | 3 credit points — Level P

Introduction to Network Engineering G (10088) | 3 credit points — Level G

Professional Practice in Engineering G (10097) | 3 credit points — Level G

Network Architecture PG (10099) | 3 credit points — Level P

Wireless Networks PG (10100) | 3 credit points — Level P

System and Network Administration PG (11515) | 3 credit points — Level P

Introduction to Cyber Security G (11941) | 3 credit points — Level G

ICT and Engineering Research Methodology PG (12090) | 3 credit points — Level P

Engineering Work Experience PG (12091) | 0 credit points — Level P

Engineering Project PG Part A (12092) | 6 credit points — Level P

Engineering Project PG Part B (12093) | 6 credit points — Level P

Advanced Network Engineering PG (12094) | 3 credit points — Level P

Students may seek permission to replace the required and restricted-choice units by writing a report detailing previous experience or study. Permission is at the discretion of the Course Convener.

### Restricted Choice - Must pass 6 credit points from the following

High Speed Networks PG (6692) | 3 credit points — Level P

Mobile Technologies G (9076) | 3 credit points — Level G

Digital Signal Processing G (10095) | 3 credit points — Level G

Introduction to Computer Engineering G (10096) | 3 credit points — Level G

Enterprise and Cloud Computing PG (11510) | 3 credit points — Level P

Internet of Things PG (11513) | 3 credit points — Level P

Cloud Computing Architecture PG (11527) | 3 credit points — Level P

Advanced Cyber Security PG (11940) | 3 credit points — Level P

Software Defined Networking PG (12095) | 3 credit points — Level P

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

**Year 1**

**Semester 1**

Introduction to Cyber Security G (11941)

Introduction to Information Technology G (8936)

Introduction to Network Engineering G (10088)

Technology and Engineering Management PG (9784)

**Semester 2**

ICT and Engineering Research Methodology PG (12090)

Network Architecture PG (10099)

Professional Practice in Engineering G (10097)

System and Network Administration PG (11515)

**Year 2**

**Semester 1**

Engineering Project PG Part A (12092)

Wireless Networks PG (10100)

Restricted choice elective

**Semester 2**

Advanced Network Engineering PG (12094)

Engineering Project PG Part B (12093)

Engineering Work Experience PG (12091)

Restricted choice elective

Standard Full Time, Semester 2 Commencing

**Year 1**

**Semester 2**

Introduction to Information Technology G (8936)

Introduction to Network Engineering G (10088)

Professional Practice in Engineering G (10097)

Restricted choice elective

**Year 2**

**Semester 1**

ICT and Engineering Research Methodology PG (12090)

Introduction to Cyber Security G (11941)

Technology and Engineering Management PG (9784)

Wireless Networks PG (10100)

**Semester 2**

Advanced Network Engineering PG (12094)

Engineering Project PG Part A (12092)

Network Architecture PG (10099)

**Year 3**

**Semester 1**

Engineering Project PG Part B (12093)

Engineering Work Experience PG (12091)

Software Defined Networking PG (12095)

Restricted choice elective

# Course information

## Course duration

Standard 2 years full time or part-time equivalent. Maximum 6 years from date of enrolment to date of course completion.

## Learning outcomes

| Learning outcomes | Related graduate attributes |
| --- | --- |
| Communicate complex theoretical and technical engineering concepts, information, and ideas to a variety of audiences using appropriate media | 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.<br><br>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.<br><br>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; evaluate and adopt new technology. |
| Demonstrate advanced and integrated understanding of a complex body of engineering knowledge including recent developments within specific specialisations | 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.<br><br>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.<br><br>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; evaluate and adopt new technology. |

| | |
|---|---|
| Critically evaluate and apply established engineering theories, practices, and techniques to develop creative 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.<br><br>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.<br><br>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; evaluate and adopt new technology. |
| Plan and execute a research-based project within a specific engineering specialisation | 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.<br><br>UC graduates are global citizens: Think globally about issues in their profession; adopt an informed and balanced approach across professional and international boundaries; 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.<br><br>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; evaluate and adopt new technology. |
| Apply skills required of the professional engineering environment, including collaboration, initiative, management, leadership, and professional | 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 |

| | |
|---|---|
| communication | 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; adapt to complexity, ambiguity and change by being flexible and keen to engage with new ideas; evaluate and adopt new technology. |
| Apply advanced understandings of engineering workplace ethics, responsibilities, safety, and sustainability | 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; 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.

# Awards

| Award | Official abbreviation |
|---|---|
| Master of Engineering (Network Engineering) | ME (Network E) |

## Honours

None.

## 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 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 |

# Download your course guide

# Scholarships

Find the scholarship that's the right fit for you

**Explore Scholarships**