

## **Bachelor of Engineering in Network and Software**

Engineering (106JA.4)

Please note these are the 2017 details for this course

## **Domestic students**

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

## International students

 Academic entry
 To study at UC, you'll need to meet our academic entry requirements and any admission requirements

 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	
Duration	4.0 years
Faculty	Faculty of Science and Technology
Discipline	Academic Program Area - Technology
CRICOS code	066903D
English language requirements	An IELTS Academic score of 6.0 overall, with no band score below 6.0 (or equivalent).
	View IELTS equivalences

## About this course

## Charge your IT future and keep the world connected

Do you want a degree in network and software engineering that offers plenty of choice in your career? Do you want to become an accredited professional engineer?

With our Bachelor of Engineering in Network and Software Engineering you will be in demand internationally across the rapidly growing IT and telecommunications industries.

## Study our Bachelor of Engineering in Network and Software Engineering at UC and you will:

- study core areas of network and software engineering
- acquire in-depth knowledge and skills for a range of software based systems in communication network infrastructures
- cover data networking, mobile and wireless communications, network security, cloud computing, big data and multimedia
- be able to design, implement and operate communication networks, as well as associated services and applications.

## Work Integrated Learning

Every student completes an exciting industry-oriented engineering project during their degree. You will also have the opportunity to

undertake professional internships for valuable workplace experience.

## **Career Opportunities**

- Communications
- Audio-visual
- Recreational
- Automobile telematics
- Industrial control
- Home automation

## Course specific information

It is assumed that applicants have completed the following subjects as part of their high school studies:

- ACT: Mathematical Methods
- NSW: Mathematics.

## Professional accreditation

The course is provisionally accredited by Engineers Australia, full accreditation by the Engineers Australia (EA) is being pursued and is expected to be granted within the normal timeframe. The course has sought accreditation by the Australian Computer Society at the Professional level.

# **Admission requirements**

Applicants must meet normal University requirements for admission to an undergraduate course or hold qualifications deemed to be equivalent by the University¿s Admissions Committee.

## Assumed knowledge

ACT: Mathematical Methods. NSW: Mathematics

## 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 in Network and Software Engineering (106JA) | 96

### credit points

#### Required - 66 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 48 credit points as follows

Introduction to Software Engineering (5531) | 3 credit points – Level 1 Database Design (5915) | 3 credit points – Level 1 Systems Analysis and Modelling (6365) | 3 credit points – Level 2 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 Introduction to DSP (8226) | 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

- Industrial Experience: 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 also required.

#### Restricted Choice - 30 credit points as follows

#### Part A - Must pass 18 credit points from the following

- Honours: Students undertaking Honours must complete unit 9826 ICT and Engineering Research Methods. - Unit Availability: The availability of Part A units may vary each semester. Database Systems (7157) | 3 credit points - Level 3 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 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 ICT and Engineering Research Methods (9826) | 3 credit points - Level 4

#### Part B - Must select 1 of the following

#### Option 1 - Must pass 12 credit points as follows

Engineering Project 1 (9587) | 6 credit points - Level 4

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Engineering Project 2 (9588) | 6 credit points - Level 4
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Note:

• Option 1 is for students who are not undertaking Honours.

#### Option 2 - Must pass 12 credit points as follows

Engineering Thesis 1 (6cp) (9824) | 6 credit points - Level 4

Engineering Thesis 2 (6cp) (9825) | 6 credit points - Level 4

Note:

• Option 2 is for Honours students.

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

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Year 1
Semester 1
Database Design (5915)
Introduction to Network Engineering (8741)
Introduction to Software Engineering (5531)
Semester 2
Engineering Management 2A (8228)
Introduction to Computer Engineering (8223)
Software Technology 1 (4483)
Year 2
Semester 1
Mobile Technologies (8878)
Signals and Systems (8235)
Software Technology 2 (7170)
System Software (7171)
Semester 2
Communication Theory (8233)
Electronics Systems (8224)
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Systems Analysis and Modelling (6365) Web Design and Programming (7175) Year 3 Semester 1 Introduction to DSP (8226) Technology and Engineering Management (9789) Wireless Networks (8227) Semester 2 Computer and Network Security (8019) Contemporary IT & E Issues (9788) Network Architecture (9428) Year 4 Semester 1 Engineering Project 1 (9587) Semester 2

Engineering Project 2 (9588)

#### Standard Full Time, Semester 1 Start with Honours

Year 1 Semester 1 Database Design (5915) Introduction to Network Engineering (8741) Introduction to Software Engineering (5531) Semester 2 Engineering Management 2A (8228) Introduction to Computer Engineering (8223) Software Technology 1 (4483)

Year 2

Semester 1

Mobile Technologies (8878) Signals and Systems (8235) Software Technology 2 (7170) System Software (7171) Semester 2 Communication Theory (8233) Electronics Systems (8224) Systems Analysis and Modelling (6365) Web Design and Programming (7175) Year 3 Semester 1 Introduction to DSP (8226) Technology and Engineering Management (9789) Technology and Engineering Management (9879) Wireless Networks (8227) Semester 2 Computer and Network Security (8019) Contemporary IT & E Issues (9788) Network Architecture (9428) Year 4 Semester 1 Engineering Thesis 1 (6cp) (9824) ICT and Engineering Research Methods (9826)

Semester 2

Engineering Thesis 2 (6cp) (9825)

# **Course information**

### **Course duration**

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

## Learning outcomes

Learning outcomes	Related graduate attributes
Develop a functional specification from an initial brief, evaluate the various design options available to meet a given set of specifications, formulate a final design specification, and implement and test the preferred option.	Analysis and inquiry: ability to gather information, analyse and evaluate information and situations in a systematic, creative and insightful way.
Determine which principles in the sciences and engineering are appropriate to use in the solution of complex technological problems in the field of information engineering;	Problem solving: ability to apply problem¿solving processes in novel situations; identify, analyse problems then formulate, implement solutions.
Assess the impact of an engineering project on the social and physical environment;	Professionalism and social responsibility: capacity and intention to use professional knowledge and skills ethically and responsibly, for the benefit of others and the environment.
Manage the human, physical and financial resources required to implement or maintain a complex engineering project;	Working independently and with others: ability to plan own work, be self¿directed, use interpersonal skills and attitudes to work collaboratively.
Transfer and enhance the knowledge and skills acquired during the course to new or complementary areas of engineering and technology through lifelong learning;	Application of Knowledge and skills Lifelong learning and personal attributes applicable to the evolving technological world.
Communicate effectively in oral and written form.	Communication: ability to present knowledge, ideas and opinions effectively and communicate within and across professional and cultural boundaries
Design, implement and maintain large software systems, following contemporary software engineering practices	Skills: Technical skills for the design, implement and maintain large software

	systems
Understand and participate in the processes of business analysis of systems;	Skills: Professional skills for the development of the engineering activity within a broad business context.
Apply relevant theories and techniques to the analysis and solution of problems in information technology.	Application of Knowledge and skills: Apply relevant theories and techniques to the analysis and solution of problems in information technology and engineering.
Apply their particular engineering strengths to the design, construction and maintenance of hardware, software, and systems in all sizes of computer installations, from the large mainframe and client-server systems encountered in the Commonwealth Public Service and its supporting organisations, to embedded microprocessors dedicated to controlling a single appliance or process	Application of Knowledge and skills: Apply engineering strengths to the design, construction and maintenance of hardware, software, and systems
Apply their particular engineering strengths to the design, construction and maintenance of systems in network communications and software engineering, such as those encountered in the Commonwealth Public Service, major telecommunications companies and national and international standard electronics and electrical industry companies.	Application of Knowledge and skills Apply engineering strengths to the design, construction and maintenance of systems in network communications and software engineering.
Majors	

• Major in Network Engineering (MJ0262)

### Awards

Award	Official abbreviation
Bachelor of Engineering in Network and Software Engineering	BE Network&SE

### Honours

Honours degrees are available to students who achieve good results (Grade Point Average (GPA) of 5.00/7 or better) in the first three years of their studies. Honours students then complete different units, with the emphasis on research, in their fourth year of study. The degrees with Honours will be awarded in the following classes depending on the GPA obtained and other conditions:

- First Class: course GPA>6, and High Distinction in Engineering Thesis 1 and 2.;
- Second Class Division I: course GPA>5.25, and Distinction in Engineering Thesis 1 and 2.;
- Second Class Division II: course GPA>4.5, and Credit in Engineering Thesis 1 and 2.
- The rest: students take out the pass degrees.

## 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	Please contact the University Student Centre by Email student.centre@canberra.edu.au or Phone 1300 301 727

## Download your course guide



# **Scholarships**

Find the scholarship that's the right fit for you

## Explore Scholarships

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CRICOS 00212K

TEQSA Provider ID: PRV12003 (Australian University)

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.