UNSW Engineering

In Comparison: Undergraduate Computer Science and Engineering Program Offerings

	Computer Engineering	Software Engineering	Computer Science	Computer Science (Advanced)	Cyber Security (Sydney)
Focus	Computer engineering has a focus on computer systems design and development including digital circuits and computer architecture.	Software engineering has a focus on computer software design and project management.	Computer science has a focus on data representation and structures, and algorithms for programming languages and machine systems	Computer Science (Advanced) has a strong focus in programming, software engineering, computer hardware, data structures and algorithms.	Cyber Security has a focus on programming, computer systems, and data structures & algorithms to design secure systems, networks and data platforms using industry-standard technologies.
Degree and Duration	Bachelor of Engineering (Hons) *4 years*	Bachelor of Engineering (Hons) *4 years*	Bachelor of Computer Science *3 years*	Bachelor of Advanced Computer Science (Honours) 4 years	Bachelor of Cyber Security (Sydney) 3 years
Study areas	• Computing • Electronics • Embedded Systems • Operating Systems • Networks • Systems and Control • Telecommunications	• Computing • Software Engineering • Software Development • Software Process • System Design	The available majors are: • Artificial Intelligence • Computer Networks • Computer Science • Database Systems • Embedded Systems • Programming Languages • Security Engineering	Alongside completing Advanced Computer Science electives, can choose from three majors • Computer Science • Security Engineering • Artificial Intelligence And an optional Minor in Maths And an optional Minor in Maths	N/A (no specialisations options in this degree yet)
Program Structure	• Common first year covering introductory courses in mathematics, physics and computing. • Courses from study areas above plus electives to deepen knowledge • 60 days industrial training • Final year will include a thesis project in Computer Engineering.	• Common first year covering introductory courses in mathematics, physics and computing. • Courses from study areas above plus electives to deepen knowledge • Team-based workshops that focus on project work • 60 days industrial training • Final year will include a thesis project in Software Engineering.	• Core courses including Mathematics, Programming, Computer Systems, Software Engineering, Data Structures, Computer Networks, Ethics, Object Oriented Design, Algorithms and Programming techniques. • One major from the above • Possible Minor in Accounting, Finance, Information Systems, Marketing, Maths, Psychology • Final year includes a computer science project.	• Core courses including mathematics, Programming, Computer Systems, Software Engineering, Data Structures, Computer Networks, Ethics, Object Oriented Design, Algorithms and Programming techniques. • Two Mathematics Course • Study courses relevant to your major of choice • Two general electives • In the final year will complete an Honours thesis-Computer Science Thesis Project.	• Core courses including Foundations of Cyber Security, Programming Fundamentals, Human Centric Security, Data Structures & Algorithms and Discrete Mathematics. • Cyber electives including Cloud Security, Applied Cryptography, Software Security Analysis and Privacy Engineering. • Free elective options

Accreditation	Engineers Australia & Australian Computer Society	Engineers Australia & Australian Computer Society	Australian Computer Society	Accreditation from the Australian Computer Society is in progress.	TBC
Career Opportunities	Computer Engineers can work in many different fields. Computer Engineers work with computer systems of any type, including desktops and laptops but also embedded systems for gaming, vehicles and PDAs. Computer Engineers also work with supercomputers as used in climate modelling and gene analysis as well as prosthetic systems such as ocular implants.	Professional's work involving large-scale software development across a range of sectors including IT, Finance, Energy, Healthcare and more. Some careers include Application Developer, Web Developer, Systems Developer or Technical Team Leader, Software Architect	Specialists in Computer Science are increasingly sought-after across many different industries from finance to consulting, government to healthcare. Potential roles upon graduation include: • Cybersecurity Consultant • Information Systems Manager • Database Administrator • Data Scientist • Data Engineer • Systems Analyst • Games Developer	Potential Pathway to PHD Potential roles upon graduation include: •Cybersecurity Consultant •Information Systems Manager •Database Administrator •Systems Analyst •Games Developer Graduates also have the opportunity to be at the forefront of research across diverse areas including AI, data science, cyber-security and software and systems.	Career opportunities in cyber security are rapidly expanding. There is an increasing need for experts in cyber defence across primary industries, Commonwealth agencies and departments, to counter the rising number of cyber-attacks. Potential roles include: • Cryptography Engineer • Cyber Defense Incident Responder • Cyber Forensics Analyst • Cyber Security Analyst • Cyber Security Architect • Information Security Analyst • Security Engineer

Degree Finder Pages

Computer Engineering	Software Engineering	Computer Science	Computer Science (Advanced)	Cyber Security (Sydney)

Handbook Pages

Computer Engineering	Software Engineering	Computer Science	Computer Science (Advanced)	Cyber Security (Sydney)