

# WESTERN SYDNEY UNIVERSITY



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## Indonesia

### SURABAYA CAMPUS COURSE STRUCTURES

#### Programs

#	Name of Program
1	Bachelor of Computer Science
2	Bachelor of Information and Communications Technology
3	Bachelor of Data Science
4	Bachelor of Business (Applied Finance)
5	Bachelor of Engineering Science (Electrical Engineering)

#### Definitions:

- ✓ **Work Integrated Learning (WIL)** is incorporated to ensure students develop the ability to integrate learning through a combination of academic and work-related activities, and
- ✓ A **Capstone subject** is incorporated to consolidate students' final-year learning with hands-on experience to gain insights into the demands and responsibilities of the working world, hone their leadership and management skills, and obtain greater understanding of decision-making, corporate social responsibility, and sustainability.

Bachelor of Computer Science				
Approved Abbreviation		BCompSc		
Program Code		3506		
AQF Level		7		
CRICOS Code		041105G		
Program Structure		Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below.		
Work Integrated Learning (WIL)		Within this program, the student will undertake <a href="#">INFO 3008</a> to fulfil the WIL requirement.		
Capstone Subject		<a href="#">COMP 3018</a>		
Program Outcome		<p>Our specialist Computer Science degree will equip you with the skills needed to be career-ready through specialising in different applications of computer science and computer systems.</p> <p>The program provides an in-depth technical understanding of computer software systems. It will provide you with a solid foundation for computer science study in computer theory, software design, development, and applications.</p> <p>With a focus on hands on learning led by industry experts, you will use cutting edge technology to develop skills in software design, AI, programming, and cyber security.</p> <p>You will gain benefits by working on real world projects and complete an industry experience project giving you an edge to access excellent career opportunities as programmers, system or software developers, or AI engineers.</p>		
Graduate Profile		<ol style="list-style-type: none"> <li>1. Communicate in a professional manner with others at all levels within and beyond the industry and across discipline, cultural and national boundaries, orally, in writing and through presentations.</li> <li>2. Perform work of high quality with an awareness of the professional code of conduct, professional and personal ethics, and the legal and social implications of technological change and professional practice</li> <li>3. Work independently and as a member of a team, including cross-discipline teams, and plan, manage and report on personal and project deliverables</li> <li>4. Plan, implement and monitor systems to provide appropriate and ongoing quality assurance in respect to all work undertaken</li> <li>5. Demonstrate an understanding of a variety of computer systems, their capabilities, and limitations</li> </ol>		
Career Opportunities		Software development, Systems Programming, Cyber Security, AI Software Analyst & Developer, Research and Development in Computer Science.		
YEAR	SEMESTER	CODE	NAME	CPS
Year 1	Semester 1	COMP 1005	<a href="#">Programming Fundamentals</a>	10
		INFS 2001	<a href="#">Database Design and Development</a>	10
		COMP 2004	<a href="#">Computer Networking</a>	10
		<i>tbc</i>	<i>Character Building: Agama</i>	5

Bachelor of Computer Science				
		<i>tbc</i>	<i>Character Building: Kewarganegaraan</i>	5
			<i>Total</i>	40
	Semester 2	MATH 1028	<a href="#">Statistical Decision Making</a>	10
		COMM 1026	<a href="#">Principles of Professional Communication 1</a>	10
		MATH 1006	<a href="#">Discrete Mathematics</a>	10
		COMP 2021	<a href="#">Software Engineering Fundamentals</a>	10
			<i>Total</i>	40
Year 2	Semester 3	COMP 2008	<a href="#">Computer Organisation</a>	10
		COMP 2014	<a href="#">Object Oriented Programming</a>	10
		INFO 3015	<a href="#">Internet of Things and Smart Environments</a>	10
		COMP 3032	<a href="#">Machine Learning</a>	10
			<i>Total</i>	40
	Semester 4	COMP 2019	<a href="#">System Programming 1</a>	10
		COMP 2009	<a href="#">Data Structures and Algorithms</a>	10
		INFO 3008	<a href="#">Professional Development*</a>	10
		<i>tbc</i>	<i>Bahasa Indonesia</i>	5
		<i>tbc</i>	<i>Character Building: Pancasila</i>	5
		<i>Total</i>	40	
Year 3	Semester 5	INFO 3006	<a href="#">Information Security</a>	10
		INFS 3008	<a href="#">Formal Software Engineering</a>	10
		COMP 3009	<a href="#">Distributive Systems and Programming</a>	10
		COMP 3003	<a href="#">Artificial Intelligence</a>	10
			<i>total</i>	40
	Semester 6	COMP 3018	<a href="#">Professional Experience**</a>	10
		INFO 3002	<a href="#">Ethical Hacking Principles and Practice</a>	10
		COMP 3027	<a href="#">Robotic Programming</a>	10
		COMP 3007	<a href="#">Computer Networks and Internets</a>	10
			<i>Total</i>	40
<b>TOTAL CPS</b>				<b>240</b>

\* Indicates Work Integrated Learning subject

\*\* Indicates Capstone subject

Bachelor of Information and Communication Technology				
Approved Abbreviation		BICT		
Program Code		3639		
AQF Level		7		
CRICOS Code		064013K		
Program Structure		Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below.		
Work Integrated Learning (WIL)		Within this program, the student will undertake <a href="#">INFO 3018</a> to fulfil the WIL requirement.		
Capstone Subject		<a href="#">COMP 3018</a>		
Program Outcome		The Bachelor of Information and Communications Technology is a professional ICT course that provides graduates with a skills and knowledge base in networking and IT applications areas of ICT and the ability to apply practical solutions across ICT. It allows students to develop skills in application development, program design, systems analysis & design, networks, web-design, and the implementation of technology.		
Graduate Profile		<ol style="list-style-type: none"> <li>1. Explain the complex networks involved when dealing with people, business, and government in the context of ICT development, support, and service provision.</li> <li>2. Evaluate the technological and software core of ICT theory and practice analysing and designing applications</li> <li>3. Apply the knowledge and skills required for the development of new applications and new application areas</li> <li>4. Innovate by keeping up to date with the rapid development in technology and practice across the ICT domain, as an extension of their current understandings and the ability to find innovative ICT solutions and move the ICT field forward.</li> <li>5. Perform work of high quality with an awareness of the professional code of conduct, professional and personal ethics, and the legal and social implications of technological change relating to privacy of information and professional practice.</li> </ol>		
Career Opportunities		Systems architect, Systems integrator, Software quality analyst, Business programmer, Software engineer analyst, Games developer.		
YEAR	SEMESTER	CODE	NAME	CPS
Year 1	Semester 1	COMP 2004	<a href="#">Computer Networking</a>	10
		COMP 2021	<a href="#">Software Engineering Fundamentals</a>	10
		INFS 2001	<a href="#">Database Design and Development</a>	10
		COMP 1005	<a href="#">Programming Fundamentals</a>	10
		<i>tba</i>	<i>Bahasa Indonesia</i>	5
			<i>Total</i>	45
	Semester 2	MATH 1038	<a href="#">Mathematics for Computing</a>	10
		INFO 1003	<a href="#">Professional Practice, Communication and Ethics</a>	10
		MATH 1006	<a href="#">Discrete Mathematics</a>	10
		<i>tba</i>	<i>Character Building: Pancasila</i>	5

Bachelor of Information and Communication Technology				
		<i>tba</i>	<i>Character Building: Kewarganegaraan</i>	5
			<i>Total</i>	40
Year 2	Semester 3	COMP 3028	<a href="#">Software Construction</a>	10
		COMP 2015	<a href="#">Programming Techniques</a>	10
		COMP 2008	<a href="#">Computer Organisation</a>	10
		INFO 3015	<a href="#">Internet of Things and Smart Environments</a>	10
		<i>tba</i>	<i>Character Building: Agama</i>	5
			<i>Total</i>	45
	Semester 4	COMP 2027	<a href="#">Cyber Security</a>	10
		COMP 2009	<a href="#">Data Structures and Algorithms</a>	10
		INFO 3002	<a href="#">Human-Computer Interaction</a>	10
		COMP 3012	<a href="#">Introduction to Cloud Computing</a>	10
		<i>Total</i>	40	
Year 3	Semester 5	INFO 3019	<a href="#">Project Management</a>	10
		COMP 3013	<a href="#">Mobile Applications Development</a>	10
		COMP 3036	<a href="#">Full Stack Development</a>	10
		INFO 3018	<a href="#">Computing Practicum*</a>	10
			<i>Total</i>	40
	Semester 6	COMP 3018	<a href="#">Professional Experience**</a>	10
		COMP 3015	<a href="#">Operating Systems Programming</a>	10
		COMP 2023	<a href="#">Mathematical Programming</a>	10
			<i>Total</i>	30
<b>TOTAL CPS</b>				<b>240</b>
* Indicates Work Integrated Learning subject				
** Indicates Capstone subject				

Bachelor of Data Science				
Approved Abbreviation		BDataSc		
Program Code		3769		
AQF Level		7		
CRICOS Code		089203J		
Program Structure		Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below.		
Work Integrated Learning		Within this program, the student will undertake <a href="#">INFO3008</a> to fulfil the WIL requirement.		
Capstone Project		<a href="#">COMP 3035</a>		
Program Outcome		Data is ubiquitous in this digital age and plays an important role in all careers. A Data Scientist has the required expertise to convert all forms of data into valuable information. This degree equips its graduates with the skills and knowledge for designing experimental studies, building, and fitting models for analysis, visualisation, estimation and prediction, machine learning for prediction, analysis of complex data relationships, storage, and retrieval of big data. These skills are essential for the analysis of customer transactions and behaviour, scientific investigations, financial trends, and online behaviour.		
Graduate Profile		<ol style="list-style-type: none"> <li>1. Apply and analyse data science methodologies that include collecting, extracting, transforming (modelling), predicting, visualising, testing, and storing data to solve problems in a range of contexts.</li> <li>2. Formulate problems and use data ethically and responsibly to provide information and advice that is reliable, valid, timely, innovative, and relevant for their chosen specialty.</li> <li>3. Integrate analytical thinking, computational and statistical skills and tools in the discovery and analysis of data patterns, trends, and problems.</li> <li>4. Communicate specialist advice, data problems, informed decisions, and recommendations in multiple formats to diverse stakeholders and audiences.</li> <li>5. Collaborate inclusively with others in multidisciplinary and professional contexts.</li> <li>6. Reflect on professional skill needs, emerging technologies, methods, and tools, and develop a capacity to adapt to changing contexts.</li> </ol>		
Career Opportunities		Business intelligence analytics, Data mining engineer, Data architect, Data Scientist.		
YEAR	SEMESTER	CODE	NAME	CPS
Year 1	Semester 1	MATH 1014	<a href="#">Mathematics 1A</a>	10
		NATS 1019	<a href="#">Scientific Literacy</a>	10
		COMP 1005	<a href="#">Programming Fundamentals</a>	10
		COMP 1014	<a href="#">Thinking about Data</a>	10
		TBC	<i>Bahasa Indonesia</i>	5
			Total	45

Bachelor of Data Science					
	Semester 2	MATH 1006	<a href="#">Discrete Mathematics</a>	10	
		COMP 1013	<a href="#">Analytics Programming</a>	10	
		COMP 2026	<a href="#">Visual Analytics</a>	10	
		COMP 2004	Computer Networking	10	
		TBC	<i>Character Building : Kewarganegaraan</i>	5	
			<b>Total</b>	<b>45</b>	
Year 2	Semester 3	INFS 2001	<a href="#">Database Design and Development</a>	10	
		COMP 2023	<a href="#">Mathematical Programming</a>	10	
		COMP 3032	<a href="#">Machine Learning</a>	10	
		COMP 2025	<a href="#">Introduction to Data Science</a>	10	
			TBC	<i>Character Building: Agama</i>	5
				Total	45
	Semester 4	COMP 3002	<a href="#">Applications of Big Data</a>	10	
		MATH 3011	<a href="#">Probabilistic Models and Inference</a>	10	
		COMP 2014	<a href="#">Object Oriented Programming</a>	10	
		<i>TBC</i>	<i>Character Building: Pancasila</i>	5	
		<b>Total</b>	<b>35</b>		
Year 3	Semester 5	<b>COMP 3035</b>	<a href="#">Discovery Project**</a>	10	
		COMP 3020	<a href="#">Social Web Analytics</a>	10	
		COMP 2020	<a href="#">Technologies for Web Applications</a>	10	
		INFO 3007	<a href="#">Network Security</a>	10	
			Total	40	
	Semester 6	INFO 3002	<a href="#">Ethical Hacking Principles and Practice</a>	10	
		COMP 2009	<a href="#">Data Structures and Algorithms</a>	10	
		<b>INFO 3008</b>	<a href="#">Professional Development*</a>	10	
			Total	30	
<b>Total CPS</b>				<b>240</b>	
* Indicates Work Integrated Learning subject					
** Indicates Capstone subject					

Bachelor of Business (Applied Finance)				
Approved Abbreviation		BBusAF		
Program Code		2786		
AQF Level		7		
CRICOS Code		089205G		
Program Structure		Qualification for this award requires the successful completion of 240 credit points which include the units listed in the recommended sequence below.		
Work Integrated Learning		Within this program, the student will undertake <a href="#">BUSM2041</a> to fulfil the WIL requirement.		
Capstone Subject		<a href="#">ECON 3007</a>		
Program Outcome		The Applied Finance major equips you with the expert skills to create a career as a finance specialist. In this major you will develop in-depth knowledge of finance with a focus on investment and securities, economics, and banking and finance. The core subjects in the Bachelor of Business will provide you a foundation of business knowledge and develop your skills in innovation, career planning, and numeracy. The Applied Finance major builds on this knowledge and skills in an applied discipline-based context. Finance specialists work in a range of roles within the rapidly growing finance sector.		
Graduate Profile		<ul style="list-style-type: none"> <li>-to communicate effectively in verbal presentations, meetings, discussions etc. and written communication via reports, emails, policies etc.</li> <li>- understand how different roles within teams influence effective teamwork and to understand the skills required to be an active team member and or leader when required</li> <li>- think critically by assessing, analysing, and evaluating an issue or problem to improve the breadth and quality of your thinking as a professional</li> <li>- solve problems by defining a problem, identifying a cause, and finding alternatives in your professional practice</li> <li>- act as a global citizen by considering diversity through the ability to understand people and business through different cultural lenses</li> <li>- act responsibly as a moral practitioner who can evaluate specific relationships or challenges as a responsible professional</li> </ul>		
Career Opportunities		Finance specialist, Fund Manager, Corporate Treasuries, Futures Trader, Investment Specialist, Finance Manager		
YEAR	SEMESTER	CODE	NAME	CPS
Year 1	Semester 1	LAW 1001	<a href="#">Enterprise Law</a>	10
		BUSM 1010	<a href="#">Financing Enterprises</a>	10
		ECON 1003	<a href="#">Financial Institutions and Markets</a>	10
		MATH 1030	<a href="#">Statistics for Business</a>	10
			<b>Total</b>	40
	Semester 2	BUSM 1008	<a href="#">Enterprise Leadership</a>	10
		ECON 2002	<a href="#">Corporate Financial Management</a>	10
		BUSM 1006	<a href="#">Enterprise Innovation and Markets</a>	10



Bachelor of Business (Applied Finance)				
		COMP 1013	<a href="#">Analytics Programming</a>	10
			<i>Total</i>	40
Year 2	Semester 3	FINC 3008	<a href="#">Investment Management</a>	10
		BUSM 2041	<a href="#">Working in Professions*</a>	10
		BUSM 1042	<a href="#">Introduction to Business Analytics</a>	10
		<i>tbc</i>	<i>Bahasa Indonesia</i>	5
		<i>tbc</i>	<i>Character Building: Kewarganegaraan</i>	5
			<i>Total</i>	40
	Semester 4	INFS 2001	<a href="#">Database Design and Development</a>	10
		ECON 3014	<a href="#">International Finance</a>	10
		ECON 3006	<a href="#">Economic and Financial Modelling</a>	10
		<i>tbc</i>	<i>Character Building: Agama</i>	5
<i>tbc</i>		<i>Character Building: Pancasila</i>	5	
		<i>Total</i>	40	
Year 3	Semester 5	FINC 3001	<a href="#">Bank Management</a>	10
		ECON 3003	<a href="#">Derivatives</a>	10
		BUSM 3028	<a href="#">Innovation, Enterprise, and Society</a>	10
		FINC 3011	<a href="#">Property Investment</a>	10
			<i>Total</i>	40
	Semester 6	FINC 3015	<a href="#">Security Analysis and Business Valuation</a>	10
		ECON 3007	<a href="#">Economics and Finance Engagement Project (Enterprise Engaged Subject)**</a>	10
		COMP 3002	<a href="#">Applications of Big Data</a>	10
		BUSM 3036	<a href="#">Leadership and Entrepreneurship</a>	10
		<i>Total</i>	40	
			<b>TOTAL CPS</b>	<b>240</b>
* Indicates Work Integrated Learning subject				
** Indicates Capstone subject				

Bachelor of Engineering Science (Electrical)				
Approved Abbreviation		BEngSc		
Program Code		3691.1		
AQF Level		7		
CRICOS Code		074195E		
Program Structure		Qualification for this award requires the successful completion of 240 credit points, which include the subjects listed in the recommended sequence below.		
Program Outcome		The Bachelor of Engineering Science is a three-year degree program with common first year structure. The program has been developed with the view of enabling graduates to practice as an engineering technologist in their chosen field. The three-year Bachelor of Engineering Science program may be used as a pathway to the four-year Bachelor of Engineering program that meet Engineers Australia professional accreditation requirements; an academic performance criterion will be the eligibility criteria for such transfer.		
Work Integrated Learning		Within this program, the student will undertake <a href="#">ENGR 2033</a> to fulfil the WIL requirement.		
Capstone Subject		<a href="#">ENGR3014</a>		
Graduate Profile		<ol style="list-style-type: none"> <li>1. a comprehensive knowledge of scientific principles applicable to solve engineering problems.</li> <li>2. an ability to use systems approach to solve engineering problems in specialised domains.</li> <li>3. the expertise to employ research skills to find viable engineering solutions.</li> <li>4. an enthusiasm to adopt sustainable solutions to local and global problems</li> <li>5. an ability to engage in multi-disciplinary teams in a professional and ethical manner.</li> <li>6. effective oral and written communication skills.</li> <li>7. essential leadership and project management skills.</li> <li>8. the skills to recognize progress in their field and to participate in continuous professional development.</li> </ol>		
Career Opportunities		Engineering technologists, consultants, data loggers, programmers, or junior engineers training for major projects.		
YEAR	SEMESTER	CODE	NAME	CPS
Year 1	Semester 1	MATH 1016	<a href="#">Mathematics for Engineers 1</a>	10
		ELEC 1003	<a href="#">Electrical Fundamentals</a>	10
		ENGR 1018	<a href="#">Fundamentals of Mechanics</a>	10
		ENGR 1024	<a href="#">Introduction to Engineering Practice</a>	10
			<b>Total</b>	40
	Semester 2	MATH 1019	<a href="#">Mathematics for Engineers 2</a>	10
		ELEC 1006	<a href="#">Engineering Computing</a>	10
		ENGR 1011	<a href="#">Engineering Physics</a>	10
<i>tbc</i>		<i>Bahasa Indonesia</i>	5	

Bachelor of Engineering Science (Electrical)					
		<i>tbc</i>	<i>Character Building: Pancasila</i>	5	
			<i>Total</i>	40	
Year 2	Semester 3	ENGR 3029	<a href="#">Specialisation Workshop 1</a>	10	
		ELEC 2009	<a href="#">Microprocessor Systems</a>	10	
		ELEC 2010	<a href="#">Power and Machines</a>	10	
		ENGR 3006	<a href="#">Control Systems</a>	10	
				Total	40
	Semester 4	ENGR 3030	<a href="#">Specialisation Workshop 2</a>	10	
		ELEC 2001	<a href="#">Circuit Theory</a>	10	
		ELEC 2011	<a href="#">Signals and Systems</a>	10	
ELEC 1001		<a href="#">Digital Systems 1</a>	10		
			<i>Total</i>	40	
Year 3	Semester 5	ENGR 3013	<a href="#">Engineering Science Project 1</a>	10	
		ELEC 3009	<a href="#">Power systems</a>	10	
		ELEC 3003	<a href="#">Digital Signal Processing</a>	10	
		<i>tbc</i>	<i>Character Building: Agama</i>	5	
		<i>tbc</i>	<i>Character Building: Kewarganegaraan</i>	5	
				<i>Total</i>	40
	Semester 6	ENGR 3014	<a href="#">Engineering Science Project 2**</a>	10	
		ELEC 3001	<a href="#">Communication Systems</a>	10	
		ELEC 3006	<a href="#">Electrical Machines 1</a>	10	
		ELEC 3004	<a href="#">Electronics</a>	10	
		Industrial Experience			
ENGR 2033		<a href="#">Industrial Engineering (Engineering Technologist)*</a>	10		
			<i>Total</i>	40	
<b>TOTAL CPS</b>				<b>240</b>	
* Indicates Work Integrated Learning subject					
** Indicates Capstone subject					