MECHANICAL ENGINEERING, TESTAMUR MAJOR (T103)

Western Sydney University Major Code: T103

Previous Code: KT3173.1, MT3054

Available to students in other Western Sydney University programs?

No

Mechanical engineering is a dynamic area involving the design and build of moving machines including engines that power transportation, industrial machinery, and a range of tools. Students put the core concepts of mechanical engineering, energy, thermodynamics, mechanics, kinematics, and fluid mechanics, into practical application in workshops, industry projects, and work integrated learning. Students design and construct machines and tools, monitor and evaluate their performance. Employment opportunities include automotive or mechanical engineer, control and instrumentation engineer. This major includes a mandatory 12 weeks of industrial placement as a completion requirement.

Location

Campus	Mode	Advice	N
Parramatta City Campus - Macquarie Street	Internal	Major Advice (edbe@westernsydney.e	C du.a
Parramatta Campus - Victoria Road	Internal	Major Advice (edbe@westernsydney.e	N gube
Penrith Campus	Internal	Major Advice (edbe@westernsydney.e	du E
Sydney City Campus*	Internal	Major Advice (p.lendrum@city.western	S Is) _S

^{*} Curriculum delivered through an agreement with another party

Major Sequence Current

This major sequence applies to students who commenced in 2024 or later. If you commenced prior to 2024 please refer to the Sequence 2022-23 tab for details.

This major is included in Bachelor of Engineering Science, Bachelor of Engineering (Honours), Bachelor of Engineering Advanced (Honours) and Bachelor of Engineering (Honours)/Bachelor of Business.

Please follow the recommended sequence for your program as noted below.

Bachelor of Engineering Advanced (Honours) (3771)

This Major will be offered at Engineering Innovation Hub which is part of Parramatta City campus.

Qualification for this award requires the successful completion of 320 credit points which include the subjects listed below.

Start-year intake

Start-year intak	e	
Course	Title	Credit Points
Year 1		
Autumn session		
MATH 1034	Mathematics for Engineers 1 (Advanced)	10
ENGR 1024	Introduction to Engineering Practice	10
ENGR 1047	Advanced Engineering Physics 1	10
ELEC 1006	Engineering Computing	10
	Credit Points	40
Spring session		
MATH 1035	Mathematics for Engineers 2 (Advanced)	10
ENGR 1018	Fundamentals of Mechanics	10
ELEC 1003	Electrical Fundamentals	10
ENGR 2023	Advanced Engineering Physics 2	10
	Credit Points	40
Year 2		
Autumn session		
ENGR 2035	Modern Digital Design and Development	10
MECH 2003	Mechanics of Materials	10
MECH 2001	Kinematics and Kinetics of Machines	10
CIVL 2003	Fluid Mechanics	10
ı.au)	Credit Points	40
Spring session		
MECH 3008	Thermodynamics and Heat Transfer	10
J EN)GR 2025	Design Graphics: Engineering Documentation	10
ENGR 2001	Automated Manufacturing	10
Select one elective*	or Minor subject	10
of completion of 160	maintain a minimum GPA of 5.0 at the end 0 Credit Points, and again at the completion will be automatically transferred to the B. rs) (3740) program.	
	Credit Points	40
Year 3		
Autumn session		
PROC 2003	Materials Selection and Design	10
MECH 3005	Mechanical Design	10
BUSM 2049	Creative and Innovative Thinkers	10
Select one elective*	or Minor subject	10
	Credit Points	40
Spring session		
MECH 3007	Thermal and Fluid Engineering	10
MECH 3006	Mechatronic Design	10
MECH 3004	Dynamics of Mechanical Systems	10
MECH 3002	Advanced Mechanics of Materials	10
Industrial Experience	2	
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	40
Year 4	5.54.1.5	
Autumn session		
ENGR 4043	Advanced Engineering Thesis 1: Preliminary Investigations	20
MECH 4004	Robotics	10
Select one elective*		10
ociect one elective	Credit Points	40

Credit Points

40

^{**} Electives must be Level 2 or higher

Spring session	
ENGR 4044	Advanced Engineering Thesis 2: Detailed Investigations
MECH 4002	Computer Aided Engineering

MECH 4002 Computer Aided Engineering 10
Select one elective** or Minor subject 10
Credit Points 40
Total Credit Points 320

Subject	Title	Credit
		Points

Optional Electives

The following subject is an optional elective subject offered to students who are engaged in a School approved project.

ENGR 3022 Special Technical Project 10

Equivalent Subjects

The subjects listed below count towards completion of this program for students who passed these subjects in 2023 or earlier.

BUSM 2047 Venture Makers Foundations, replaced by BUSM 2049 Creative and Innovative Thinkers

Mid-year intake

Course	Title	Credit Points
Year 1		
Spring session		
MATH 1034	Mathematics for Engineers 1 (Advanced)	10
ENGR 1018	Fundamentals of Mechanics	10
ELEC 1003	Electrical Fundamentals	10
ENGR 2023	Advanced Engineering Physics 2	10
	Credit Points	40
Autumn session		
MATH 1035	Mathematics for Engineers 2 (Advanced)	10
ENGR 1024	Introduction to Engineering Practice	10
ENGR 1047	Advanced Engineering Physics 1	10
ELEC 1006	Engineering Computing	10
	Credit Points	40
Year 2		
Spring session		
MECH 3008	Thermodynamics and Heat Transfer	10
ENGR 2025	Design Graphics: Engineering	10
	Documentation	
ENGR 2001	Automated Manufacturing	10
Select one elective**	<u> </u>	10
	Credit Points	40
Autumn session		
MECH 2003	Mechanics of Materials	10
ENGR 2035	Modern Digital Design and Development	10
MECH 2001	Kinematics and Kinetics of Machines	10
CIVL 2003	Fluid Mechanics	10
Students who fail to maintain a minimum GPA of 5.0 at the end of completion of 160 Credit Points, and again at the completion of 200 Credit points will be automatically transferred to the B. Engineering (Honours) (3740) program.		

Credit Points 40

Year 3	
Spring	session

20

0---

Subject T	itle	Credit Points
	Total Credit Points	320
	Credit Points	40
Select one elective	** or Minor subject	10
MECH 4004	Robotics	10
ENGR 4044	Advanced Engineering Thesis 2: Detailed Investigations	20
Autumn session		
	Credit Points	40
Select one elective		10
MECH 4002	Computer Aided Engineering	10
ENGR 4043	Advanced Engineering Thesis 1: Preliminary Investigations	20
Spring session		
Year 4	Credit Points	40
ENGR 3017	Industrial Experience (Engineering) Credit Points	40
Industrial Experience		^
Select one elective	•	10
BUSM 2049	Creative and Innovative Thinkers	10
MECH 3005	Mechanical Design	10
PROC 2003	Materials Selection and Design	10
Autumn session		
	Credit Points	40
MECH 3002	Advanced Mechanics of Materials	10
MECH 3004	Dynamics of Mechanical Systems	10
MECH 3006	Mechatronic Design	10
MECH 3007	Thermal and Fluid Engineering	10
Spring session		

Optional Electives

The following subject is an optional elective subject offered to students who are engaged in a School approved project.

This subject can be taken during the third year of this program, however, permission is required to enrol in the subject.

ENGR 3022 Special Technical Project 10

Equivalent Subjects

The subjects listed below count towards completion of this program for students who passed these subjects in 2023 or earlier.

BUSM 2047 Venture Makers Foundations, replaced by BUSM 2049 Creative and Innovative Thinkers

Bachelor of Engineering (Honours) (3740)

This Major will be offered at Engineering Innovation Hub which is part of Parramatta City campus, Penrith and Sydney City campuses.

Qualification for this award requires the successful completion of 320 credit points which include the subjects listed below.

** Electives must be Level 2 or higher (An exception applies for students completing MATH 1021 Mathematics for Engineers Preliminary. This subject will then count as one of the elective subjects)

			0 1	and wat the second
Course	Title	Credit	Select one elective	e** or Minor subject
V1		Points		Credit Points
Year 1 Autumn session				Total Credit Point
ELEC 1006	Engineering Computing	10	Mid-year inta	ke
ENGR 1011	Engineering Computing Engineering Physics	10	Course	Title
ENGR 1011	Introduction to Engineering Practice	10	Course	Title
Select one of the f	• •	10	Year 1	
MATH 1021	Mathematics for Engineers Preliminary	10	Spring session	
MATH 1016	Mathematics for Engineers 1		ENGR 1018	Fundamentals of
WATITIOTO	Credit Points	40	PROC 1008	Introduction to Ma
Spring session	Cledit Follits	40	ELEC 1003	Electrical Fundam
ENGR 1018	Fundamentals of Mechanics	10	Select one of the f	ollowing
PROC 1008	Introduction to Materials Engineering	10	MATH 1016	Mathematics for I
ELEC 1003	Electrical Fundamentals	10	MATH 1019	Mathematics for I
Select one of the f		10		Credit Points
MATH 1016	Mathematics for Engineers 1	10	Autumn session	
MATH 1010	Mathematics for Engineers 2		ELEC 1006	Engineering Comp
WATH 1019	Credit Points	40	ENGR 1011	Engineering Physi
Year 2	Credit Pollits	40	ENGR 1024	Introduction to En
Autumn session			Select one of the f	following
	Kinematics and Kinetics of Machines	10	MATH 1021	Mathematics for I
MECH 2001 MECH 2003	Mechanics of Materials	10	MATH 1016	Mathematics for I
CIVL 2003	Fluid Mechanics	10		Credit Points
ENGR 2035	Modern Digital Design and Development	10	Year 2	
ENGN 2033	Credit Points	40	Spring session	
Chring accoion	Credit Pollits	40	ENGR 2001	Automated Manu
Spring session MECH 3004	Dynamics of Machanical Systems	10	MECH 3008	Thermodynamics
ENGR 2001	Dynamics of Mechanical Systems Automated Manufacturing	10	Select one elective	
MECH 3008	Thermodynamics and Heat Transfer	10	Select one elective	•
MECH 3008 MECH 3002	Advanced Mechanics of Materials	10		Credit Points
IVILOR 3002	Credit Points	40	Autumn session	
Year 3	Credit Pollits	40	MECH 2001	Kinematics and K
Autumn session			MECH 2003	Mechanics of Mat
MECH 3005	Mechanical Design	10	CIVL 2003	Fluid Mechanics
MECH 3003	Advanced Dynamics	10	ENGR 2035	Modern Digital De
PROC 2003	Materials Selection and Design	10		Credit Points
	*** or Minor subject	10	Year 3	
Industrial Experier	•	10	Spring session	
ENGR 3017	Industrial Experience (Engineering)	0	MECH 3007	Thermal and Fluid
LINGH 3017	Credit Points	40	MECH 3002	Advanced Mechai
Caring accoion	Credit Points	40	MECH 4002	Computer Aided E
Spring session	Thermal and Fluid Engineering	10	MECH 3004	Dynamics of Mec
MECH 3007	Thermal and Fluid Engineering			Credit Points
MECH 4002 MECH 3006	Computer Aided Engineering	10 10	Autumn session	
	Mechatronic Design		MECH 3005	Mechanical Desig
Select one elective	** or Minor subject	10	MECH 3001	Advanced Dynam
., .	Credit Points	40	PROC 2003	Materials Selection
Year 4			MECH 4001	Computational Flu
Autumn session	0 151:15	10	Industrial Experier	•
MECH 4001	Computational Fluid Dynamics	10	ENGR 3017	Industrial Experie
MECH 4004	Robotics	10		Credit Points
ENGR 4041	Final Year Project 1 (UG Engineering)	20	Year 4	Great Follits
	Credit Points	40		
Spring session			Spring session MECH 3006	Machatrania Da
ENGR 4042	Final Year Project 2 (UG Engineering)	20	MECH 3006	Mechatronic Desi

	** or Minor subject	10
Select one elective	** or Minor subject	10
	Credit Points	40
	Total Credit Points	320
Mid-year intak	(e	
Course	Title	Credit
		Points
Year 1		
Spring session		
ENGR 1018	Fundamentals of Mechanics	10
PROC 1008	Introduction to Materials Engineering	10
ELEC 1003	Electrical Fundamentals	10
Select one of the fo	ollowing	10
MATH 1016	Mathematics for Engineers 1	
MATH 1019	Mathematics for Engineers 2	
	Credit Points	40
Autumn session		
ELEC 1006	Engineering Computing	10
ENGR 1011	Engineering Physics	10
ENGR 1024	Introduction to Engineering Practice	10
Select one of the fo	ollowing	10
MATH 1021	Mathematics for Engineers Preliminary	
MATH 1016	Mathematics for Engineers 1	
	Credit Points	40
Year 2		
Spring session		
ENGR 2001	Automated Manufacturing	10
MECH 3008	Thermodynamics and Heat Transfer	10
Select one elective	or Minor subject	10
Select one elective	or Minor subject	10
	Credit Points	40
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
MECH 2003	Mechanics of Materials	10
CIVL 2003	Fluid Mechanics	10
ENGR 2035	Modern Digital Design and Development	10
	Credit Points	40
Year 3		
Spring session		
MECH 3007	Thermal and Fluid Engineering	10
MECH 3002	Advanced Mechanics of Materials	10
MECH 4002	Computer Aided Engineering	10
MECH 3004	Dynamics of Mechanical Systems	10
	Credit Points	40
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
PROC 2003	Materials Selection and Design	10
MECH 4001	Computational Fluid Dynamics	10
Industrial Experien	ce	
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	40
Year 4		
Spring session		
MECH 3006	Mechatronic Design	10

ENGR 4041	Final Year Project 1 (UG Engineering)	20
Select one electi	Select one elective or Minor subject	
	Credit Points	40
Autumn session		
MECH 4004	Robotics	10
ENGR 4042	Final Year Project 2 (UG Engineering)	20
Select one elective or Minor subject		10
	Credit Points	40
	Total Credit Points	320

Bachelor of Engineering Science

Title

This Major will be offered at Engineering Innovation Hub which is part of Parramatta City campus, Penrith and Sydney City campuses.

Qualification for this award requires the successful completion of 240 credit points which include the subjects listed in the recommended sequences below.

Start-year intake

Course

334.33		Points
Year 1		
Autumn session		
ELEC 1006	Engineering Computing	10
ENGR 1011	Engineering Physics	10
ENGR 1024	Introduction to Engineering Practice	10
Select one of the fo	llowing	10
MATH 1021	Mathematics for Engineers Preliminary	
MATH 1016	Mathematics for Engineers 1	
	Credit Points	40
Spring session		
ENGR 1018	Fundamentals of Mechanics	10
PROC 1008	Introduction to Materials Engineering	10
ELEC 1003	Electrical Fundamentals	10
Select one of the fo	llowing	10
MATH 1016	Mathematics for Engineers 1	
MATH 1019	Mathematics for Engineers 2	
	Credit Points	40
Year 2		
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
MECH 2003	Mechanics of Materials	10
CIVL 2003	Fluid Mechanics	10
ENGR 3029	Specialisation Workshop 1	10
	Credit Points	40
Spring session		
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 2001	Automated Manufacturing	10
MECH 3008	Thermodynamics and Heat Transfer	10
ENGR 3030	Specialisation Workshop 2	10
Industrial Experience	ce	
ENGR 2033	Industrial Experience (Engineering Technologist)	0
	Credit Points	40
Year 3		
Autumn session		
MECH 3005	Mechanical Design	10

	Total Credit Points	240
	Credit Points	40
Select two elective	es (Level 2 or higher)	20
ENGR 3014	Engineering Science Project 2	10
MECH 3007	Thermal and Fluid Engineering	10
Spring session		
	Credit Points	40
ENGR 2035	Modern Digital Design and Development	10
ENGR 3013	Engineering Science Project 1	10
MECH 3001	Advanced Dynamics	10

Mid-year intake

Credit

miu-yeai iiitakt	=	
Course	Title	Credit Points
Year 1		
Spring session		
ENGR 1018	Fundamentals of Mechanics	10
PROC 1008	Introduction to Materials Engineering	10
ELEC 1003	Electrical Fundamentals	10
Select one of the fol	lowing	10
MATH 1016	Mathematics for Engineers 1	
MATH 1019	Mathematics for Engineers 2	
	Credit Points	40
Autumn session		
ELEC 1006	Engineering Computing	10
ENGR 1011	Engineering Physics	10
ENGR 1024	Introduction to Engineering Practice	10
Select one of the fol	lowing	10
MATH 1021	Mathematics for Engineers Preliminary	
MATH 1016	Mathematics for Engineers 1	
	Credit Points	40
Year 2		
Spring session		
ENGR 2001	Automated Manufacturing	10
MECH 3008	Thermodynamics and Heat Transfer	10
ENGR 3029	Specialisation Workshop 1	10
Select one elective (Level 2 or higher)	10
	Credit Points	40
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
MECH 2003	Mechanics of Materials	10
CIVL 2003	Fluid Mechanics	10
ENGR 3030	Specialisation Workshop 2	10
Industrial Experience	e	
ENGR 2033	Industrial Experience (Engineering Technologist)	0
	Credit Points	40
Year 3		
Spring session		
MECH 3007	Thermal and Fluid Engineering	10
MECH 4002	Computer Aided Engineering	10
ENGR 3013	Engineering Science Project 1	10
MECH 3004	Dynamics of Mechanical Systems	10
	Credit Points	40
Autumn session		
MECH 3005	Mechanical Design	10
	•	

40

10

10

10

	Total Credit Points	240
	Credit Points	40
ENGR 2035	Modern Digital Design and Development	10
ENGR 3014	Engineering Science Project 2	10
MECH 3001	Advanced Dynamics	10

Bachelor of Engineering (Honours)/ Bachelor of Business (3800)

Qualification for this award requires the successful completion of 440 credit points, which include the subjects listed in the recommended sequence below.

Start-year intake

Course	Title	Credit Points
Year 1		
Autumn session		
ENGR 1011	Engineering Physics	10
MATH 1016	Mathematics for Engineers 1	10
Business Core Su	bject 1	10
Business Core Su	bject 2	10
	Credit Points	40
Spring session		
PROC 1008	Introduction to Materials Engineering	10
ENGR 1018	Fundamentals of Mechanics	10
MATH 1019	Mathematics for Engineers 2	10
Business Core Su	bject 3	10
	Credit Points	40
Year 2		
Autumn session		
MECH 2003	Mechanics of Materials	10
ENGR 1024	Introduction to Engineering Practice	10
MECH 3008	Thermodynamics and Heat Transfer	10
Business Core Su	bject 4	10
	Credit Points	40
Spring session		
ENGR 2001	Automated Manufacturing	10
MECH 3002	Advanced Mechanics of Materials	10
Business Profess	ional Subject 1	10
Business Profess	ional Subject 2	10
	Credit Points	40
Year 3		
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
ELEC 1006	Engineering Computing	10
CIVL 2003	Fluid Mechanics	10
ENGR 2035	Modern Digital Design and Development	10
	Credit Points	40
Spring session		
MECH 3007	Thermal and Fluid Engineering	10
MECH 3004	Dynamics of Mechanical Systems	10
Business Major S		10
Business Major S	-	10
	Credit Points	40

Year 4		
Autumn session		
ELEC 1003	Electrical Fundamentals	10
MECH 3001	Advanced Dynamics	10
Business Major Subj		10
Business Major Subj	ect 4	10
	Credit Points	40
Spring session		
MECH 3006	Mechatronic Design	10
MECH 4002	Computer Aided Engineering	10
Business Major Subj		10
Business Major Subj		10
Industrial Experience		
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	40
Year 5		
Autumn session		
MECH 3005	Mechanical Design	10
PROC 2003	Materials Selection and Design	10
Business Major Subj		10
Business Major Subj		10
	Credit Points	40
Spring session		
ENGR 4041	Final Year Project 1 (UG Engineering)	20
Business Profession	•	10
Business Profession	·	10
., .	Credit Points	40
Year 6		
Autumn session	Fig. 1.V. and David and O. (110) Fig. sign and only	00
ENGR 4042	Final Year Project 2 (UG Engineering)	20
MECH 4004	Robotics	10
MECH 4001	Computational Fluid Dynamics	10
	Credit Points	40
	Total Credit Points	440
Mid-year intake		
Course	Title	Credit
oodise	rite	Points
Year 1		
Spring session		
MATH 1016	Mathematics for Engineers 1	10
ENGR 1018	Fundamentals of Mechanics	10
Business Core Subje	ct 1	10
Business Core Subject		10
,	Credit Points	40
Autumn session		
MATH 1019	Mathematics for Engineers 2	10
ENGR 1011	Engineering Physics	10
ELEC 1006	Engineering Computing	10
ELEC 1003	Electrical Fundamentals	10
	- P 1 .	

Credit Points

Automated Manufacturing

Introduction to Materials Engineering

Year 2

Spring session ENGR 2001

Business Professional Subject 3

PROC 1008

Business Professi	Credit Points	10 40
Autumn session	orealt i onto	7(
MECH 2003	Mechanics of Materials	10
ENGR 1024	Introduction to Engineering Practice	10
MECH 3008	Thermodynamics and Heat Transfer	10
MECH 2001	Kinematics and Kinetics of Machines	10
WE0112001	Credit Points	40
Year 3	Great Forms	
Spring session		
MECH 3004	Dynamics of Mechanical Systems	10
MECH 3002	Advanced Mechanics of Materials	10
Business Professi	onal Subject 1	10
Business Professi	•	10
	Credit Points	40
Autumn session		
CIVL 2003	Fluid Mechanics	10
ENGR 2035	Modern Digital Design and Development	10
Business Major St		10
Business Major St	ubject 2	10
	Credit Points	4
Year 4		
Spring session		
MECH 3007	Thermal and Fluid Engineering	10
MECH 3006	Mechatronic Design	10
Business Major St	ubject 3	10
Business Major St	ubject 4	10
	Credit Points	40
Autumn session		
PROC 2003	Materials Selection and Design	10
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
Business Major St	ubject 5	10
Industrial Experie	nce	
ENGR 3017	Industrial Experience (Engineering)	(
	Credit Points	40
Year 5		
Spring session		
MECH 4002	Computer Aided Engineering	10
Business Professi	onal Subject 6	10
Business Professi	onal Subject 7	10
Business Professi	onal Subject 8	10
	Credit Points	40
Autumn session		
Autumn session MECH 4004	Robotics	10
	Robotics Computational Fluid Dynamics	
MECH 4004		10
MECH 4004 MECH 4001	Computational Fluid Dynamics	10 20
MECH 4004 MECH 4001	Computational Fluid Dynamics Final Year Project 1 (UG Engineering)	10 20
MECH 4004 MECH 4001 ENGR 4041	Computational Fluid Dynamics Final Year Project 1 (UG Engineering)	10 20
MECH 4004 MECH 4001 ENGR 4041 Year 6	Computational Fluid Dynamics Final Year Project 1 (UG Engineering)	10 20 40
MECH 4004 MECH 4001 ENGR 4041 Year 6 Spring session	Computational Fluid Dynamics Final Year Project 1 (UG Engineering) Credit Points Final Year Project 2 (UG Engineering)	10 20 40
MECH 4004 MECH 4001 ENGR 4041 Year 6 Spring session ENGR 4042	Computational Fluid Dynamics Final Year Project 1 (UG Engineering) Credit Points Final Year Project 2 (UG Engineering) onal Subject 3	10 20 40 20 10
MECH 4004 MECH 4001 ENGR 4041 Year 6 Spring session ENGR 4042 Business Professi	Computational Fluid Dynamics Final Year Project 1 (UG Engineering) Credit Points Final Year Project 2 (UG Engineering) onal Subject 3	10 10 20 40 20 10 40

Major Sequence 2022 - 2023

If you commenced in 2024 or later please refer to the Structure 2024 tab for details.

This major is included in Bachelor of Engineering Science, Bachelor of Engineering (Honours), Bachelor of Engineering Advanced (Honours) and Bachelor of Engineering (Honours)/Bachelor of Business.

Please follow the recommended sequence for your course as noted below.

Bachelor of Engineering Advanced (Honours)

This Major will be offered at Engineering Innovation Hub which is part of Parramatta City campus.

Qualification for this award requires the successful completion of 320 credit points which include the subjects listed below.

Start-year intake

Select one Alternate Subject

Otart year mean		
Course	Title	Credit Points
Year 1		
Autumn session		
MATH 1034	Mathematics for Engineers 1 (Advanced)	10
ENGR 1024	Introduction to Engineering Practice	10
ENGR 1047	Advanced Engineering Physics 1	10
ENGR 1045	Engineering Programming Fundamentals	10
	Credit Points	40
Spring session		
ELEC 1009	Electrical Circuit Fundamentals	10
MATH 1035	Mathematics for Engineers 2 (Advanced)	10
ENGR 1018	Fundamentals of Mechanics	10
MANU 2001	Design and Manufacturing	10
	Credit Points	40
Year 2		
Autumn session		
ENGR 2027	Engineering Design	10
MECH 2003	Mechanics of Materials	10
MECH 2001	Kinematics and Kinetics of Machines	10
CIVL 2003	Fluid Mechanics	10
	Credit Points	40
Spring session		
MECH 2005	Mathematics for Mechanical and Mechatronic Engineers	10
MECH 3008	Thermodynamics and Heat Transfer	10
ENGR 2025	Design Graphics: Engineering Documentation	10
Select one elective		10
Students who fail to	maintain a minimum GPA of 5.0 at the end	
	O Credit Points, and again at the completion	
•	will be automatically transferred to the B.	
Engineering (Honou		
v •	Credit Points	40
Year 3		
Autumn session		
MECH 3002	Advanced Mechanics of Materials	10
MECH 3005	Mechanical Design	10

10

Select one electi	ve	10
	Credit Points	40
Spring session		
MECH 3007	Thermal and Fluid Engineering	10
MECH 3006	Mechatronic Design	10
ENGR 3020	Numerical Methods in Engineering	10
Select one Altern	nate Subject	10
Industrial Experi	ence	
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	40
Year 4		
Autumn session		
MECH 4004	Robotics	10
ENGR 4037	Advanced Engineering Thesis 1: Preliminary Investigations	10
Select one Alterr	nate Subject	20
Select one electi	ve	
	Credit Points	40
Spring session		
MECH 4002	Computer Aided Engineering	10
ENGR 4036	Advanced Engineering Thesis 2: Detailed Investigations	10
Select one Alterr	nate Subject	20
Select one electi	ve	
	Credit Points	40
	Total Credit Points	320

Alternate Subjects

Subject	Title	Credit Points
ENGR 3025	Designing for Circular Economy (Advanced)	10
ENGR 2024	Design Graphics: Communication for Manufacture	10
ENGR 2022	Design Practice: Sustainable Manufacturing	10
MECH 4003	Mobile Robotics	10
INFO 3003	Human-Computer Interaction	10
HLTH 2003	Biomechanics	10
ENGR 3003	Biomedical Electronics	10
ENGR 3004	Biomedical Signals and Data Analysis	10
MECH 4001	Computational Fluid Dynamics	10
BIOS 1022	Introduction to Human Biology	10
MECH 4003	Mobile Robotics	10

Minors

SM3072 Automation

SM3091 Biomedical Engineering

SM3099 Computer Aided Design (Mechanical)

Optional Electives

The following subject is an optional elective subject offered to students who are engaged in a School approved project. This subject can be taken during the third year of this program, however, permission is required to enrol in the subject.

Subject	Title	Credit
		Points
ENGR 3022	Special Technical Project	10

Equivalent Subjects

The subjects listed below count towards completion of this program for students who passed these subjects in 2021 or earlier.

MECH 4005 Advanced Engineering Thesis 1: Preliminary Investigations, replaced by ENGR 4037 Advanced Engineering Thesis 1: Preliminary Investigations

MECH 4006 Advanced Engineering Thesis 2: Detailed Investigations, replaced by ENGR 4036 Advanced Engineering Thesis 2: Detailed Investigations

Mid-year intake

Course	Title	Credit Points
Year 1		
Spring session		
MATH 1034	Mathematics for Engineers 1 (Advanced)	10
ENGR 1018	Fundamentals of Mechanics	10
MANU 2001	Design and Manufacturing	10
ELEC 1009	Electrical Circuit Fundamentals	10
	Credit Points	40
Autumn session		
MATH 1035	Mathematics for Engineers 2 (Advanced)	10
ENGR 1024	Introduction to Engineering Practice	10
ENGR 1047	Advanced Engineering Physics 1	10
ENGR 1045	Engineering Programming Fundamentals	10
	Credit Points	40
Year 2		
Spring session		
MECH 2005	Mathematics for Mechanical and Mechatronic Engineers	10
MECH 3008	Thermodynamics and Heat Transfer	10
ENGR 2025	Design Graphics: Engineering Documentation	10
Select one elective	9	10
	Credit Points	40
Autumn session		
ENGR 2027	Engineering Design	10
MECH 2003	Mechanics of Materials	10
MECH 2001	Kinematics and Kinetics of Machines	10
CIVL 2003	Fluid Mechanics	10
of completion of 1 of 200 Credit point	to maintain a minimum GPA of 5.0 at the end 60 Credit Points, and again at the completion is will be automatically transferred to the B. burs) (3740) program.	
	Credit Points	40
Year 3		

Credit Points 40 Year 3 Spring session MECH 3007 Thermal and Fluid Engineering 10 MECH 3006 Mechatronic Design 10 ENGR 3020 Numerical Methods in Engineering 10 One alternate subject 10 Credit Points 40

	Total Credit Points	320
	Credit Points	40
Select one elective		10
One alternate subjec	t	10
MECH 4004	Robotics	10
ENGR 4036	Advanced Engineering Thesis 2: Detailed Investigations	10
Autumn session		
	Credit Points	40
Select one elective		10
One alternate subjec	t	10
MECH 4002	Computer Aided Engineering	10
ENGR 4037	Advanced Engineering Thesis 1: Preliminary Investigations	10
Spring session		
Year 4		
	Credit Points	40
ENGR 3017	Industrial Experience (Engineering)	0
Industrial Experience		
Select one elective		10
One alternate subjec	t	10
MECH 3005	Mechanical Design	10
MECH 3002	Advanced Mechanics of Materials	10
Autumn session		

Alternate Subjects

Subject	Title	Credit Points
ENGR 3025	Designing for Circular Economy (Advanced)	10
ENGR 2024	Design Graphics: Communication for Manufacture	10
ENGR 2022	Design Practice: Sustainable Manufacturing	10
MECH 4003	Mobile Robotics	10
INFO 3003	Human-Computer Interaction	10
HLTH 2003	Biomechanics	10
ENGR 3003	Biomedical Electronics	10
ENGR 3004	Biomedical Signals and Data Analysis	10
MECH 4001	Computational Fluid Dynamics	10
BIOS 1022	Introduction to Human Biology	10
MECH 4003	Mobile Robotics	10

Minors

SM3072 Automation

SM3091 Biomedical Engineering

SM3099 Computer Aided Design (Mechanical)

Optional Electives

The following subject is an optional elective subject offered to students who are engaged in a School approved project. This subject can be taken during the third year of this program, however, permission is required to enrol in the subject.

Subject	Title	Credit Points
ENGR 3022	Special Technical Project	10

Equivalent Subjects

The subjects listed below count towards completion of this program for students who passed these subjects in 2021 or earlier.

MECH 4005 Advanced Engineering Thesis 1: Preliminary Investigations, replaced by ENGR 4037 Advanced Engineering Thesis 1: Preliminary Investigations

MECH 4006 Advanced Engineering Thesis 2: Detailed Investigations, replaced by ENGR 4036 Advanced Engineering Thesis 2: Detailed Investigations

Bachelor of Engineering Science

Title

This Major will be offered at Engineering Innovation Hub which is part of Parramatta City campus, Penrith and Sydney City campuses.

Qualification for this award requires the successful completion of 240 credit points which include the subjects listed in the recommended sequences below.

Credit

10

10

10

Start-year intake

Course

Year 2

Autumn session MECH 2001

MECH 2003

CIVL 2003

		Points
Year 1		
Autumn session		
ELEC 1006	Engineering Computing	10
ENGR 1011	Engineering Physics	10
ENGR 1024	Introduction to Engineering Practice	10
Select one of the fol	lowing:	10
MATH 1021	Mathematics for Engineers Preliminary	
MATH 1016	Mathematics for Engineers 1	
Mathematics for En	re required to enrol in MATH 1021 gineers Preliminary first and undertake a e beginning of their study.	
semester of enrolme student will remain	ducted at the beginning of the first ent and the result will determine whether a in MATH 1021 Mathematics for Engineers insferred by the School to MATH 1016 gineers 1.	
	nish MATH 1021 Mathematics for ry will then use this unit as an elective.	
	Credit Points	40
Spring session		
Spring session ENGR 1018	Fundamentals of Mechanics	10
	Fundamentals of Mechanics Introduction to Materials Engineering	10 10
ENGR 1018	Introduction to Materials Engineering	
ENGR 1018 PROC 1008	Introduction to Materials Engineering	10
ENGR 1018 PROC 1008 Select one of the fol	Introduction to Materials Engineering lowing:	10
ENGR 1018 PROC 1008 Select one of the fol	Introduction to Materials Engineering lowing: Mathematics for Engineers 1	10
ENGR 1018 PROC 1008 Select one of the fol MATH 1016 MATH 1019 Select one elective Note: Students who Engineers Prelimina	Introduction to Materials Engineering lowing: Mathematics for Engineers 1	10
ENGR 1018 PROC 1008 Select one of the fol MATH 1016 MATH 1019 Select one elective Note: Students who Engineers Prelimina to complete MATH 1 second semester. These students mus	Introduction to Materials Engineering lowing: Mathematics for Engineers 1 Mathematics for Engineers 2 remained in MATH 1021 Mathematics for ry during the first semester will be required 1016 Mathematics for Engineers 1 during at then complete MATH 1019 Mathematics	10
ENGR 1018 PROC 1008 Select one of the fol MATH 1016 MATH 1019 Select one elective Note: Students who Engineers Prelimina to complete MATH 1 second semester. These students mus	Introduction to Materials Engineering lowing: Mathematics for Engineers 1 Mathematics for Engineers 2 remained in MATH 1021 Mathematics for ry during the first semester will be required 1016 Mathematics for Engineers 1 during	10

Kinematics and Kinetics of Machines

Mechanics of Materials

Fluid Mechanics

ENGR 3029	Specialisation Workshop 1	10
	Credit Points	40
Spring session		
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 2001	Automated Manufacturing	10
MECH 3008	Thermodynamics and Heat Transfer	10
ENGR 3030	Specialisation Workshop 2	10
	Credit Points	40
Year 3		
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
ENGR 3013	Engineering Science Project 1	10
ENGR 2024	Design Graphics: Communication for	10
	Manufacture	
	Credit Points	40
Spring session		
MECH 3007	Thermal and Fluid Engineering	10
ENGR 3020	Numerical Methods in Engineering	10
ENGR 3014	Engineering Science Project 2	10
Select one election	ve	10
Industrial Experie	ence	
ENGR 2033	Industrial Experience (Engineering Technologist)	0
Note: Elective su	bjects must be level 2 or higher	
	Credit Points	40
	Total Credit Points	240

Equivalent Subjects

The subjects listed below count towards completion of this program for students who passed these subjects in Autumn 2022 or earlier.

ENGR 1008 - Engineering Materials, replaced by PROC 1008 - Introduction to Materials Engineering

Mid-year intake

,		
Course	Title	Credit Points
Year 1		
Spring session		
Select one of the fol	llowing:	10
MATH 1021	Mathematics for Engineers Preliminary	
MATH 1016	Mathematics for Engineers 1	
ENGR 1018	Fundamentals of Mechanics	10
PROC 1008	Introduction to Materials Engineering	10
ENGR 1024	Introduction to Engineering Practice	10
	Credit Points	40
Autumn session		
Select one of the fol	llowing:	10
MATH 1016	Mathematics for Engineers 1	
MATH 1019	Mathematics for Engineers 2	
ELEC 1006	Engineering Computing	10
ENGR 1011	Engineering Physics	10
Select one elective		10
Elective must be	e Level 1 or higher	
	Credit Points	40

Year 2 Spring session

ENGR 2001	Automated Manufacturing	10
MECH 3008	Thermodynamics and Heat Transfer	10
ENGR 3029	Specialisation Workshop 1	10
Select one elective		10
Elección de la constante de la	1 aval 0 av himbau	

· Elective must be Level 2 or higher

	Credit Points	40
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
MECH 2003	Mechanics of Materials	10
CIVL 2003	Fluid Mechanics	10
ENGR 3030	Specialisation Workshop 2	10
Industrial Experien	nce	
ENGR 2033	Industrial Experience (Engineering Technologist)	0
	Credit Points	40
Year 3		
Spring session		
MECH 3007	Thermal and Fluid Engineering	10
ENGR 3020	Numerical Methods in Engineering	10
ENGR 3014	Engineering Science Project 2	10
MECH 3004	Dynamics of Mechanical Systems	10
	Credit Points	40
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
ENGR 3013	Engineering Science Project 1	10
ENGR 2024	Design Graphics: Communication for Manufacture	10
	Credit Points	40
	Total Credit Points	240

Equivalent Subjects

The subjects listed below count towards completion of this program for students who passed these subjects in Autumn 2022 or earlier.

ENGR 1008 - Engineering Materials, replaced by PROC 1008 - Introduction to Materials Engineering

Bachelor of Engineering (Honours)/ Bachelor of Business (3728)

Qualification for this award requires the successful completion of 400 credit points, which include the subjects listed in the recommended sequence below.

Start-year intake

Course	Title	Credit Points
Year 1		
Autumn session		
ENGR 1011	Engineering Physics	10
Business Core S	Subject 1	10
Business Core S	subject 2	10
MATH 1016	Mathematics for Engineers 1	10
	Credit Points	40

Spring session		
PROC 1008	Introduction to Materials Engineering	10
Business Core Sul	bject 3	10
Business Core Sul	bject 4	10
MATH 1019	Mathematics for Engineers 2	10
	Credit Points	40
Year 2		
Autumn session		
ELEC 1006	Engineering Computing	10
Business Professi	onal Subject 1	10
Business Professi	onal Subject 2	10
Business Major Si	ubject 1	10
	Credit Points	40
Spring session		
ELEC 1003	Electrical Fundamentals	10
ENGR 1018	Fundamentals of Mechanics	10
Business Major St	ubject 2	10
Business Major Si	ubject 3	10
	Credit Points	40
Year 3		
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
MECH 2003	Mechanics of Materials	10
CIVL 2003	Fluid Mechanics	10
ENGR 2024	Design Graphics: Communication for	10
	Manufacture	
	Credit Points	40
Spring session		
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 2001	Automated Manufacturing	10
MECH 3008	Thermodynamics and Heat Transfer	10
MECH 3002	Advanced Mechanics of Materials	10
	Credit Points	40
Year 4		
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
Business Major Si	ubject 4	10
Business Major Si	-	10
-	Credit Points	40
Spring session		
MECH 3007	Thermal and Fluid Engineering	10
ENGR 3020	Numerical Methods in Engineering	10
Business Major S		10
Business Major Si		10
Industrial Experie	-	. •
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	40
Year 5	5.53101 01110	-10
Autumn session		
MECH 4004	Robotics	10
	110001100	10
	Final Year Project 1 (LIG Engineering)	
ENGR 4025	Final Year Project 1 (UG Engineering)	
	onal Subject 3	10 10 10

Spring session

	Total Credit Points	400
	Credit Points	40
Business Profess	sional Subject 4	10
MECH 3006	Mechatronic Design	10
ENGR 4026	Final Year Project 2 (UG Engineering)	10
MECH 4002	Computer Aided Engineering	10

Equivalent Subjects

The subjects listed below count towards completion of this program for students who passed these subjects in Autumn 2022 or earlier.

ENGR 1008 - Engineering Materials, replaced by PROC 1008 - Introduction to Materials Engineering

Mid-year intake

Course	Title	Credit Points
Year 1		
Spring session		
PROC 1008	Introduction to Materials Engineering	10
MATH 1016	Mathematics for Engineers 1	10
Business Core Subject	et 1	10
Business Core Subject	et 2	10
	Credit Points	40
Autumn session		
MATH 1019	Mathematics for Engineers 2	10
ENGR 1011	Engineering Physics	10
Business Core Subject	et 3	10
Business Core Subject	et 4	10
	Credit Points	40
Year 2		
Spring session		
ELEC 1003	Electrical Fundamentals	10
ENGR 1018	Fundamentals of Mechanics	10
Business Major Subje	ect 1	10
Business Major Subje	ect 2	10
	Credit Points	40
Autumn session		
ELEC 1006	Engineering Computing	10
MECH 2003	Mechanics of Materials	10
Business Professiona	al Subject 1	10
Business Major Subje	ect 3	10
	Credit Points	40
Year 3		
Spring session		
ENGR 2001	Automated Manufacturing	10
MECH 3008	Thermodynamics and Heat Transfer	10
MECH 3002	Advanced Mechanics of Materials	10
Business Major Subje	ect 4	10
	Credit Points	40
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
CIVL 2003	Fluid Mechanics	10
ENGR 2024	Design Graphics: Communication for	10
	Manufacture	
Business Professiona	al Subject 2	10
	Credit Points	40

Year 4		
Spring session		
MECH 3007	Thermal and Fluid Engineering	10
ENGR 3020	Numerical Methods in Engineering	10
MECH 3004	Dynamics of Mechanical Systems	10
Business Major S	ubject 5	10
	Credit Points	40
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
Business Major S	ubject 6	10
Business Major S	ubject 7	10
Industrial Experie	nce	
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	40
Year 5		
Spring session		
MECH 4002	Computer Aided Engineering	10
ENGR 4025	Final Year Project 1 (UG Engineering)	10
MECH 3006	Mechatronic Design	10
Business Profess	ional Subject 3	10
	Credit Points	40
Autumn session		
ENGR 4026	Final Year Project 2 (UG Engineering)	10
MECH 4004	Robotics	10
Business Profess	ional Subject 4	10
Business Major S	ubject 8	10
	Credit Points	40
	Total Credit Points	400

Equivalent Subjects

The subjects listed below count towards completion of this program for students who passed these subjects in Autumn 2022 or earlier.

ENGR 1008 - Engineering Materials, replaced by PROC 1008 - Introduction to Materials Engineering

Bachelor of Engineering (Honours)

This Major will be offered at Engineering Innovation Hub which is part of Parramatta City campus, Penrith and Sydney City campuses.

Qualification for this award requires the successful completion of 320 credit points, which include the subjects listed in the recommended sequence below.

Start-year intake

Course	Title	Credit Points
Year 1		
Autumn session		
Select one of the fo	ollowing:	10
MATH 1021	Mathematics for Engineers Preliminary	
MATH 1016	Mathematics for Engineers 1	
ELEC 1006	Engineering Computing	10
ENGR 1011	Engineering Physics	10
ENGR 1024	Introduction to Engineering Practice	10
	Credit Points	40
Spring session		
Select one of the fo	ollowing:	10

		_
	Credit Points	4
Elective must be	e Level 2 or higher	
Select one elective		1
One alternate subje		1
ENGR 4026	Final Year Project 2 (UG Engineering)	10
Spring session MECH 4002	Computer Aided Engineering	1
Spring acceion	Credit Points	4
Elective must be	pe Level 2 or higher	
Select one elective		1
One alternate subje		10
ENGR 4025	Final Year Project 1 (UG Engineering)	11
MECH 4004	Robotics	1
Autumn session		
Year 4		
	Credit Points	4
ENGR 3017	Industrial Experience (Engineering)	
Industrial Experien		
One alternate subje	ect	1
MECH 3006	Mechatronic Design	1
ENGR 3020	Numerical Methods in Engineering	1
MECH 3007	Thermal and Fluid Engineering	1
Spring session	Credit Points	4
Elective must be	e Level 2 or higher	
Select one elective		1
One alternate subje	•	1
MECH 3001	Advanced Dynamics	1
MECH 3005	Mechanical Design	1
Year 3 Autumn session		
	Credit Points	4
MECH 3002	Advanced Mechanics of Materials	1
MECH 3008	Thermodynamics and Heat Transfer	1
ENGR 2001	Automated Manufacturing	1
MECH 3004	Dynamics of Mechanical Systems	1
Spring session		
	Credit Points	4
ENGR 2025	Design Graphics: Engineering Documentation	1
CIVL 2003	Fluid Mechanics	1
MECH 2003	Mechanics of Materials	1
MECH 2001	Kinematics and Kinetics of Machines	1
Autumn session		
Year 2	Credit Points	4
	ne Level 1 or higher	
Select one elective		1
PROC 1008	Introduction to Materials Engineering	1
MATH 1019 ENGR 1018	Mathematics for Engineers 2 Fundamentals of Mechanics	1

Equivalent Subjects

The subjects listed below count towards completion of this program for students who passed these subjects in Autumn 2022 or earlier.

ENGR 1008 - Engineering Materials, replaced by PROC 1008 - Introduction to Materials Engineering

Mid-year intake

Course	Title	Credit Points
Year 1		
Spring session		
Select one of the	following:	10
MATH 1021	Mathematics for Engineers Preliminary	
MATH 1016	Mathematics for Engineers 1	
ENGR 1018	Fundamentals of Mechanics	10
PROC 1008	Introduction to Materials Engineering	10
ENGR 1024	Introduction to Engineering Practice	10
	Credit Points	40
Autumn session		
Select one of the	following:	10
MATH 1016	Mathematics for Engineers 1	
MATH 1019	Mathematics for Engineers 2	
ELEC 1006	Engineering Computing	10
ENGR 1011	Engineering Physics	10
Select one electiv	e	10
Elective must	be Level 1 or higher	
	Credit Points	40
Year 2		
Spring session		
ENGR 2001	Automated Manufacturing	10
MECH 3008	Thermodynamics and Heat Transfer	10
One alternate sub	ject	10
Select one electiv	e	10
Elective must	be Level 2 or higher	
	Credit Points	40
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
MECH 2003	Mechanics of Materials	10
CIVL 2003	Fluid Mechanics	10
ENGR 2025	Design Graphics: Engineering Documentation	10
	Credit Points	40
Year 3		
Spring session		
MECH 3007	Thermal and Fluid Engineering	10
MECH 3002	Advanced Mechanics of Materials	10
ENGR 3020	Numerical Methods in Engineering	10
MECH 3004	Dynamics of Mechanical Systems	10
	Credit Points	40
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
One alternate sub	•	10
Select one elective		
Elective must	be Level 2 or higher	
	-	

Industrial Experience

ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	40
Year 4		
Spring session		
MECH 4002	Computer Aided Engineering	10
ENGR 4026	Final Year Project 2 (UG Engineering)	10
MECH 3006	Mechatronic Design	10
One alternate subject		10
	Credit Points	40
Autumn session		
MECH 4004	Robotics	10
ENGR 4025	Final Year Project 1 (UG Engineering)	10
One alternate subject		10
Select one elective	ve	10
Elective mus	t be Level 2 or higher	
	Credit Points	40
	Total Credit Points	320

Equivalent Subjects

The subjects listed below count towards completion of this program for students who passed these subjects in Autumn 2022 or earlier.

ENGR 1008 - Engineering Materials, replaced by PROC 1008 - Introduction to Materials Engineering

Related Programs

Bachelor of Engineering (Honours)/Bachelor of Business (3728) (https://hbook.westernsydney.edu.au/programs/bachelor-engineering-honours-bachelor-business/)

Bachelor of Engineering (Honours) (3740) (https://hbook.westernsydney.edu.au/programs/bachelor-engineering-honours/)

Bachelor of Engineering Advanced (Honours) (3771) (https://hbook.westernsydney.edu.au/programs/bachelor-engineering-advanced-honours/)

Bachelor of Engineering Science (3691) (https://hbook.westernsydney.edu.au/programs/bachelor-engineering-science/)