ROBOTICS AND MECHATRONICS ENGINEERING, TESTAMUR MAJOR (T104)

Western Sydney University Major Code: T104

Previous Code: KT3174.1, MT3055

Available to students in other Western Sydney University programs? No

Handbook Summary 2022-2023

Robotics and Mechatronic engineering combines electrical, computing and mechanical engineering and is at the forefront in designing smart machines and systems, such as pilotless spacecraft, car cruise control, automated factories and medical telerobotics. Students explore intelligent mechanical systems and automation through an extensive and integrated hands-on laboratory program, as well as work-integrated industry projects. Students learn in-depth knowledge about the design and construction of these systems to integrate, evaluate and address their performance. The multidisciplinary skills students develop are sought after by leading edge industries, including aerospace and biomedical engineering. This major includes a mandatory 12 weeks of industrial placement as a completion requirement.

Summary 2024

Robotics and Mechatronic engineering combines electrical, computing and mechanical engineering. It is at the forefront in designing smart machines and systems, such as pilotless spacecraft, car cruise control, automated factories and medical telerobotics. Students explore intelligent mechanical systems and automation through an extensive and integrated hands-on laboratory program, as well as work-integrated industry projects. Students learn in-depth knowledge about the design and construction of these systems to integrate, evaluate and address their performance. The multidisciplinary skills students develop are sought after by leading edge industries, including aerospace and biomedical engineering. All students complete a mandatory 300 to 450 hour industrial placement.

Location				O Credit Points, and again at the completion	
Campus	Mode	Advice	of 200 Credit points will be automatically transferred to the B. Engineering (Honours) (3740) program.		
Parramatta Campus - Victoria Road	Internal	Major Advice (edbe@westernsydney.ed	u.au)	Credit Points	40
Parramatta City Campus-Macquarie	Internal	Major Advice (edbe@westernsydney.ed	Year 3 u.au)		
Street			MECH 3001	Advanced Dynamics	10
Penrith Campus	Internal	Major Advice	MECH 3005	Mechanical Design	10
		(edbe@westernsydney.ed	UPROC 2003	Materials Selection and Design	10
	• •		BUSM 2049	Creative and Innovative Thinkers	10
Major Structu	ire i lirrent			a the tra	

Major Structure Current

This major structure applies to students who commenced in 2024 or later. If you commenced prior to 2024 please refer to the Structure 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)

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

Start-year intake

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		
ELEC 1003	Electrical Fundamentals	10
MATH 1035	Mathematics for Engineers 2 (Advanced)	10
ENGR 1018	Fundamentals of Mechanics	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
ELEC 1001	Digital Systems 1	10
	Credit Points	40
Spring session		
ELEC 2009	Microprocessor Systems	10
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 2001	Automated Manufacturing	10
Select one elective*	* or Minor subject	10
of completion of 16	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. rs) (3740) program.	
du.au)	Credit Points	40
Year 3		
du.au)		
MECH 3001	Advanced Dynamics	10
MECH 3005	Mechanical Design	10
duPROC 2003	Materials Selection and Design	10
BUSM 2049	Creative and Innovative Thinkers	10
	Credit Points	40
Spring session		
MECH 3006	Mechatronic Design	10
ELEC 4009	Instrumentation and Measurement	10
ELEC 2008	Microcontrollers and PLCs	10
Select one elective*	* or Minor subject	10
Industrial Experienc	e	

ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	40
Year 4		
Autumn session		
ENGR 4043	Advanced Engineering Thesis 1: Preliminary Investigations	20
MECH 4004	Robotics	10
Select one elective*	* or minor subject	10
	Credit Points	40
Spring session		
ENGR 4044	Advanced Engineering Thesis 2: Detailed Investigations	20
MECH 4003	Mobile Robotics	10
Select one elective*	* or Minor subjecs	10
	Credit Points	40
	Total Credit Points	320

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 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
ELEC 1001	Digital Systems 1	10
ENGR 1047	Advanced Engineering Physics 1	10
ELEC 1006	Engineering Computing	10
	Credit Points	40
Year 2		
Spring session		
ELEC 2009	Microprocessor Systems	10
ELEC 2008	Microcontrollers and PLCs	10
ENGR 2001	Automated Manufacturing	10
Select one elective**	or Minor subject	10
	Credit Points	40

Autumn session ENGR 2035	Modern Digital Design and Development	10
MECH 2003	Mechanics of Materials	10
ENGR 1024	Introduction to Engineering Practice	10
MECH 2001	Kinematics and Kinetics of Machines	10
	to maintain a minimum GPA of 5.0 at the end	TC
	160 Credit Points, and again at the completion	
	ts will be automatically transferred to the B.	
	ours) (3740) program.	
	Credit Points	40
Year 3		
Spring session		
MECH 3006	Mechatronic Design	10
Select one electiv	e** or Minor subject	10
ELEC 4009	Instrumentation and Measurement	10
MECH 3004	Dynamics of Mechanical Systems	10
	Credit Points	40
Autumn session		
MECH 3001	Advanced Dynamics	10
MECH 3005	Mechanical Design	10
PROC 2003	Materials Selection and Design	10
BUSM 2049	Creative and Innovative Thinkers	10
Industrial Experie	nce	
ENGR 3017	Industrial Experience (Engineering)	(
	Credit Points	40
Year 4		
Spring session		
ENGR 4043	Advanced Engineering Thesis 1:	20
	Preliminary Investigations	
MECH 4003	Mobile Robotics	10
Select one electiv	e** or Minor subject	10
	Credit Points	40
Autumn session		
ENGR 4044	Advanced Engineering Thesis 2: Detailed	20
	Investigations	
	Robotics	10
MECH 4004		
	e** or minor subject	10

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 2023 or earlier.

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

Bachelor of Engineering Science (3691)

This Major will be offered at Parramatta City and Penrith campuses.

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

intel **01** - ---

Start-year intake			
Course	Title	Credit 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 i	ducted at the beginning of the first ent and the result will determine whether a n MATH 1021 Mathematics for Engineers nsferred by the School to MATH 1016 gineers 1.		
	nish MATH 1021 Mathematics for		
Engineers Prelimina	ry will then use this unit as an elective.		
o	Credit Points	40	
Spring session	En dan antila (Markania)	10	
ENGR 1018	Fundamentals of Mechanics	10	
PROC 1008	Introduction to Materials Engineering	10	
ELEC 1003	Electrical Fundamentals	10	
Select one of the fol		10	
MATH 1016 MATH 1019	Mathematics for Engineers 1 Mathematics for Engineers 2		
Note: Students who Engineers Prelimina	remained in MATH 1021 Mathematics for ry during the first semester will be required 016 Mathematics for Engineers 1 during		
	t then complete MATH 1019 Mathematics		
for Engineers 2 duri	ng the Summer session.		
Year 2 Autumn session	Credit Points	40	
MECH 2001	Kinematics and Kinetics of Machines	10	
MECH 2003	Mechanics of Materials	10	
ELEC 2001	Circuit Theory	10	
ENGR 3029	Specialisation Workshop 1	10	
	Credit Points	40	
Spring session			
MECH 3004	Dynamics of Mechanical Systems	10	
ENGR 2001	Automated Manufacturing	10	
ELEC 2008	Microcontrollers and PLCs	10	
ENGR 3030	Specialisation Workshop 2	10	
Industrial Experienc			
ENGR 2033	Industrial Experience (Engineering Technologist)	0	
	a the state	4.5	

Credit Points

Year 3

40

Year 3		
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
ENGR 3013	Engineering Science Project 1	10
ELEC 1001	Digital Systems 1	10
	Credit Points	40
Spring session		
MECH 4003	Mobile Robotics	10
ENGR 3014	Engineering Science Project 2	10
Select two elective		20
Note: Elective subj	ects must be level 2 or higher	
	Credit Points	40
	Total Credit Points	240
Mid-year intak	Ke la	
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	bllowing:	10
MATH 1021	Mathematics for Engineers Preliminary	
MATH 1016	Mathematics for Engineers 1	
	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	bllowing:	10
MATH 1016	Mathematics for Engineers 1	
MATH 1019	Mathematics for Engineers 2	
	Credit Points	40
Year 2		
Spring session		
ENGR 2001	Automated Manufacturing	10
ELEC 2008	Microcontrollers and PLCs	10
ENGR 3029	Specialisation Workshop 1	10
Select one elective		10
 Elective subjec 	t 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
ELEC 2001	Circuit Theory	10
ENGR 3030	Specialisation Workshop 2	10
Industrial Experien		
ENGR 2033	Industrial Experience (Engineering Technologist)	0
	Credit Points	40
Year 3		
Spring session		
MECH 4003	Mobile Robotics	10
ENGR 3013	Engineering Science Project 1	10

	Total Credit Points	240
	Credit Points	40
ELEC 1001	Digital Systems 1	10
ENGR 3014	Engineering Science Project 2	10
MECH 3001	Advanced Dynamics	10
MECH 3005	Mechanical Design	10
Autumn session		
	Credit Points	40
Elective subje	ect must be Level 2 or higher	
Select one elective	/e	10
MECH 3004	Dynamics of Mechanical Systems	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 sequences below.

Start-year intake

Course	Title	Credit Points
Year 1		
Autumn session		
ENGR 1011	Engineering Physics	10
MATH 1016	Mathematics for Engineers 1	10
BBus core subject 1		10
BBus core subject 2		10
	Credit Points	40
Spring session		
PROC 1008	Introduction to Materials Engineering	10
MATH 1019	Mathematics for Engineers 2	10
ELEC 1003	Electrical Fundamentals	10
BBus core subject 3		10
	Credit Points	40
Year 2		
Autumn session		
ENGR 1024	Introduction to Engineering Practice	10
ELEC 1001	Digital Systems 1	10
ENGR 1018	Fundamentals of Mechanics	10
BBus Core Subject 4		10
	Credit Points	40
Spring session		
ENGR 2001	Automated Manufacturing	10
COMP 2023	Mathematical Programming	10
BBus Professional S	ubject 1	10
BBus Professional S	ubject 2	10
	Credit Points	40
Year 3		
Autumn session		
MECH 2003	Mechanics of Materials	10
ELEC 1006	Engineering Computing	10
ELEC 2001	Circuit Theory	10
MECH 2001	Kinematics and Kinetics of Machines	10
	Credit Points	40

Spring session		
ELEC 2008	Microcontrollers and PLCs	10
MECH 3004	Dynamics of Mechanical Systems	10
BBus Major Subject	et 1	10
BBus Major Subject	et 2	10
	Credit Points	40
Year 4		
Autumn session		
MECH 3005	Mechanical Design	10
ELEC 2004	Electronics	10
BBus Major Subject	et 3	10
BBus Major Subject	et 4	10
	Credit Points	40
Spring session		
ELEC 4009	Instrumentation and Measurement	10
ELEC 3011	Power and Machines	10
BBus Major Subjec	ot 5	10
BBus Major Subject	ot 6	10
Industrial Experien	ice	
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	40
Year 5		
Autumn session		
MECH 4004	Robotics	10
MECH 3001	Advanced Dynamics	10
BBus Major Subjec	et 7	10
BBus Major Subjec	et 8	10
	Credit Points	40
Spring session		
ENGR 4041	Final Year Project 1 (UG Engineering)	20
MECH 3006	Mechatronic Design	10
MECH 4003	Mobile Robotics	10
	Credit Points	40
Year 6		
Autumn session		
ENGR 4042	Final Year Project 2 (UG Engineering)	20
BBus Professional	-	10
BBus Professional		10
	Credit Points	40
	Total Credit Points	440

Replaced Subjects

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

ELEC 2010 Power and Machines, replaced by ELEC 3011 Power and Machines

Mid-year intake

Course	Title	Credit Points
Year 1		
Spring session		
MATH 1016	Mathematics for Engineers 1	10
ELEC 1003	Electrical Fundamentals	10
BBus Core Subject 1		10
BBus Core Subject 2		10
	Credit Points	40

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Autumn session

Autumn session		
MATH 1019	Mathematics for Engineers 2	10
ENGR 1011	Engineering Physics	10
ENGR 1024	Introduction to Engineering Practice	10
ENGR 1018	Fundamentals of Mechanics	10
	Credit Points	40
Year 2		
Spring session		
PROC 1008	Introduction to Materials Engineering	10
COMP 2023	Mathematical Programming	10
BBus Core Subjec		10
BBus Core Subjec		10
	Credit Points	40
Autumn session		
MECH 2003	Mechanics of Materials	10
ELEC 1006	Engineering Computing	10
ELEC 1001	Digital Systems 1	10
MECH 2001	Kinematics and Kinetics of Machines	10
	Credit Points	40
Year 3		
Spring session		
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 2001	Automated Manufacturing	10
BBus Professiona	•	10
BBus Professiona	I Subject 2	10
	Credit Points	40
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
ELEC 2004	Electronics	10
BBus Major Subje		10
BBus Major Subje		10
	Credit Points	40
Year 4		
Spring session		
ELEC 2008	Microcontrollers and PLCs	10
ELEC 3011	Power and Machines	10
BBus Major Subje		10
BBus Major Subje		10
	Credit Points	40
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
MECH 4004	Robotics	10
BBus Major Subje		10
Industrial Experie		0
ENGR 3017	Industrial Experience (Engineering)	0
Ха Г	Credit Points	40
Year 5		
Spring session		10
ELEC 4009	Instrumentation and Measurement	10
BBus Major Subje		10
BBus Major Subje		10
BBus Major Subje		10
A	Credit Points	40
Autumn session	Final Voor Draiget 1 (UC Frazingering)	00
ENGR 4041	Final Year Project 1 (UG Engineering)	20

BBus Professional Subject 3		10
BBus Profession	al Subject 4	10
	Credit Points	40
Year 6		
Spring session		
ENGR 4042	Final Year Project 2 (UG Engineering)	20
MECH 3006	Mechatronic Design	10
MECH 4003	Mobile Robotics	10
	Credit Points	40
	Total Credit Points	440

Replaced Subjects

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

ELEC 2010 Power and Machines, replaced by ELEC 3011 Power and Machines

Bachelor of Engineering (Honours) (3740)

Qualification for this award requires the successful completion of 320 credit points which include the subjects listed in the recommended sequences 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)

Start-year intake

otart year mta		
Course	Title	Credit 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
ELEC 1003	Electrical Fundamentals	10
PROC 1008	Introduction to Materials Engineering	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
ELEC 2001	Circuit Theory	10
ELEC 1001	Digital Systems 1	10
	Credit Points	40
Spring session		
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 2001	Automated Manufacturing	10
COMP 2023	Mathematical Programming	10

ELEC 2008	Microcontrollers and PLCs	10
	Credit Points	40
Year 3		
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
ELEC 2004	Electronics	10
Select one elective?	** or minor subject	10
	Credit Points	40
Spring session		
MECH 3006	Mechatronic Design	10
ELEC 3011	Power and Machines	10
MECH 4003	Mobile Robotics	10
ELEC 4009	Instrumentation and Measurement	10
Industrial Experience	ce	
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	40
Year 4		
Autumn session		
MECH 4004	Robotics	10
ENGR 4041	Final Year Project 1 (UG Engineering)	20
Select one elective?	** or minor subject	10
	Credit Points	40
Spring session		
ENGR 4042	Final Year Project 2 (UG Engineering)	20
Select two electives	s** or minor subjects	20
	Credit Points	40
	Total Credit Points	320

Replaced Subjects

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

ELEC 2010 Power and Machines, replaced by ELEC 3011 Power and Machines

Mid-year intake

Course	Title	Credit Points
Year 1		Foints
Spring session		
ENGR 1018	Fundamentals of Mechanics	10
ELEC 1003	Electrical Fundamentals	10
PROC 1008	Introduction to Materials Engineering	10
Select one of the fo	lowing:	10
MATH 1021	Mathematics for Engineers Preliminary	
MATH 1016	Mathematics for Engineers 1	
	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	lowing:	10
MATH 1016	Mathematics for Engineers 1	
MATH 1019	Mathematics for Engineers 2	
	Credit Points	40

Year 2		
Spring session		
ENGR 2001	Automated Manufacturing	10
COMP 2023	Mathematical Programming	10
ELEC 2008	Microcontrollers and PLCs	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
ELEC 2001	Circuit Theory	10
ELEC 1001	Digital Systems 1	10
	Credit Points	40
Year 3		
Spring session		
MECH 3006	Mechatronic Design	10
MECH 3004	Dynamics of Mechanical Systems	10
ELEC 3011	Power and Machines	10
ELEC 4009	Instrumentation and Measurement	10
	Credit Points	40
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
ELEC 2004	Electronics	10
Select one elective**	* or minor subject	10
Industrial Experience	e	
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	40
Year 4		
Spring session		
ENGR 4041	Final Year Project 1 (UG Engineering)	20
MECH 4003	Mobile Robotics	10
Select one elective*	* or minor subject	10
	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

Replaced Subjects

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

ELEC 2010 Power and Machines, replaced by ELEC 3011 Power and Machines

Major Structure 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 program 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

Start-year milak	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
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
ELEC 1001	Digital Systems 1	10
	Credit Points	40
Spring session		
MECH 2005	Mathematics for Mechanical and Mechatronic Engineers	10
ELEC 2009	Microprocessor Systems	10
MECH 3004	Dynamics of Mechanical Systems	10
ELEC 2008	Microcontrollers and PLCs	10
of completion of 160	maintain a minimum GPA of 5.0 at the end Credit Points, and again at the completion will be automatically transferred to the B. s) (3740) program.	
	Credit Points	40
Year 3		
Autumn session		
MECH 3001	Advanced Dynamics	10
MECH 3005	Mechanical Design	10
Select one Alternate	Subject	10
Select one elective		10
Spring session	Credit Points	40

Spring session		
MECH 4003	Mobile Robotics	10
MECH 3006	Mechatronic Design	10
ELEC 3008	Instrumentation and Measurement	10
From Spring 2022 ELEC 3008 is replaced with ELEC 4009 Instrumentation and Measurement		
Select one Alternate Subject		10
Industrial Experience	2	

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 Alternate	e subject	10
Select one elective		10
	Credit Points	40
Spring session		
ENGR 4036	Advanced Engineering Thesis 2: Detailed Investigations	10
Select one Alternate	e Subject	10
Select two electives	:	20
	Credit Points	40
	Total Credit Points	320

Alternate Subjects

Subject	Title	Credit Points
HLTH 2003	Biomechanics	10
ENGR 3003	Biomedical Electronics	10
ENGR 3004	Biomedical Signals and Data Analysis	10
MECH 4001	Computational Fluid Dynamics	10
MECH 4002	Computer Aided Engineering	10
ELEC 2007	Engineering Visualization	10
ENGR 2025	Design Graphics: Engineering Documentation	10
ENGR 2024	Design Graphics: Communication for Manufacture	10
CIVL 2003	Fluid Mechanics	10
BIOS 1022	Introduction to Human Biology	10
BIOS 1035	Anatomy and Physiology in Health	10
MECH 3007	Thermal and Fluid Engineering	10
MECH 3008	Thermodynamics and Heat Transfer	10

Minors

SM3093 Computer Aided Design (Mechatronics)

SM3074 Thermal and Fluid Systems

SM3091 Biomedical Engineering

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 2020 or earlier.

BIOS 1022 Introduction to Human Biology, replaced by BIOS 1035 Anatomy and Physiology in Health

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

Replaced Subjects

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

ELEC 3008 Instrumentation and Measurement, replaced by ELEC 4009 Instrumentation and Measurement

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 1009	Electrical Circuit Fundamentals	10
MANU 2001	Design and Manufacturing	10
	Credit Points	40
Autumn session		
MATH 1035	Mathematics for Engineers 2 (Advanced)	10
ELEC 1001	Digital Systems 1	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
ELEC 2009	Microprocessor Systems	10
ELEC 2008	Microcontrollers and PLCs	10
One alternate subje	ct	10
	Credit Points	40
Autumn session		
ENGR 2027	Engineering Design	10
MECH 2003	Mechanics of Materials	10
ENGR 1024	Introduction to Engineering Practice	10
MECH 2001	Kinematics and Kinetics of Machines	10
of completion of 16 of 200 Credit points	o maintain a minimum GPA of 5.0 at the end 0 Credit Points, and again at the completion s will be automatically transferred to the B. urs) (3740) program.	
	Credit Points	40
Year 3		

Spring session

1 5		
MECH 4003	Mobile Robotics	10
MECH 3006	Mechatronic Design	10
ELEC 3008	Instrumentation and Measurement	10
From Spring 2022	ELEC 3008 is replaced with ELEC 4009	
Instrumentation an	d Measurement	

One alternate subject 10 **Credit Points** 40 Autumn session **MECH 3001** Advanced Dynamics 10 **MECH 3005** Mechanical Design 10 10 Select one elective One alternate subject 10 Industrial Experience ENGR 3017 Industrial Experience (Engineering) 0 **Credit Points** 40 Year 4 Spring session ENGR 4037 Advanced Engineering Thesis 1: 10 Preliminary Investigations **MECH 3004** Dynamics of Mechanical Systems 10 Select two electives 20 Credit Points 40 Autumn session ENGR 4036 Advanced Engineering Thesis 2: Detailed 10 Investigations MECH 4004 Robotics 10 Select one elective 10 One alternate subject 10 **Credit Points** 40 **Total Credit Points** 320

Alternate Subjects

Subject	Title	Credit Points
HLTH 2003	Biomechanics	10
ENGR 3003	Biomedical Electronics	10
ENGR 3004	Biomedical Signals and Data Analysis	10
MECH 4001	Computational Fluid Dynamics	10
MECH 4002	Computer Aided Engineering	10
ELEC 2007	Engineering Visualization	10
ENGR 2025	Design Graphics: Engineering Documentation	10
ENGR 2024	Design Graphics: Communication for Manufacture	10
CIVL 2003	Fluid Mechanics	10
BIOS 1022	Introduction to Human Biology	10
BIOS 1035	Anatomy and Physiology in Health	10
MECH 3007	Thermal and Fluid Engineering	10
MECH 3008	Thermodynamics and Heat Transfer	10

Minors

SM3093 Computer Aided Design (Mechatronics)

SM3074 Thermal and Fluid Systems

SM3091 Biomedical Engineering

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 2020 or earlier.

BIOS 1022 Introduction to Human Biology, replaced by BIOS 1035 Anatomy and Physiology in Health

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

Replaced Subjects

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

ELEC 3008 Instrumentation and Measurement, replaced by ELEC 4009 Instrumentation and Measurement

Bachelor of Engineering Science

This Major will be offered at Parramatta City and Penrith 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	Title	Credit 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	
Mathematics for Er	are required to enrol in MATH 1021 ngineers Preliminary first and undertake a ne beginning of their study.	

This test will be conducted at the beginning of the first semester of enrolment and the result will determine whether a student will remain in MATH 1021 Mathematics for Engineers Preliminary or be transferred by the School to MATH 1016 Mathematics for Engineers 1.

The students who finish MATH 1021 Mathematics for Engineers Preliminary will then use this unit as an elective

Lighteero Freinfindry fin then doe tho diff do differente.		
	Credit Points	40
Spring session		
ENGR 1018	Fundamentals of Mechanics	10
PROC 1008	Introduction to Materials Engineering	10
Select one of the following:		10
MATH 1016	Mathematics for Engineers 1	

	Total Credit Points	24
	Credit Points	4
	s must be level 2 or higher	
Select one elective		1
ELEC 3011	Power and Machines	1
ENGR 3014	Engineering Science Project 2	1
Spring session MECH 4003	Mobile Robotics	1
	Credit Points	4
ELEC 1001	Digital Systems 1	1
ENGR 3013	Engineering Science Project 1	1
MECH 3001	Advanced Dynamics	1
MECH 3005	Mechanical Design	1
Year 3 Autumn session		
	Credit Points	4
ENGR 2033	Industrial Experience (Engineering Technologist)	
Industrial Experien	ce	
ENGR 3030	Specialisation Workshop 2	1
ELEC 2008	Microcontrollers and PLCs	1
ENGR 2001	Automated Manufacturing	1
MECH 3004	Dynamics of Mechanical Systems	1
Spring session		
	Credit Points	4
ENGR 3029	Specialisation Workshop 1	1
ELEC 2001	Circuit Theory	1
MECH 2003	Mechanics of Materials	1
MECH 2001	Kinematics and Kinetics of Machines	1
Autumn session		
Year 2	Credit Points	4
	ing the Summer session.	
second semester.	1016 Mathematics for Engineers 1 during ust then complete MATH 1019 Mathematics	
Engineers Prelimin	o remained in MATH 1021 Mathematics for ary during the first semester will be required	
Select one elective		
Calaat ana ala stirre		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

Replaced Subjects

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

ELEC 2010 Power and Machines, replaced by ELEC 3011 Power and Machines

Mid-year intake

Mid-year intak	8	
Course	Title	Credit
V 1		Points
Year 1		
Spring session	louing	10
Select one of the fol	0	10
MATH 1021 MATH 1016	Mathematics for Engineers Preliminary	
	Mathematics for Engineers 1 Fundamentals of Mechanics	10
ENGR 1018 ELEC 1003	Electrical Fundamentals	10
ELEC 1003 ENGR 1024		10
ENGR 1024	Introduction to Engineering Practice Credit Points	-
Autumn session	Credit Points	40
Select one of the fol	lowing:	10
MATH 1016	Mathematics for Engineers 1	10
MATH 1019	Mathematics for Engineers 2	
ELEC 1006	Engineering Computing	10
ENGR 1011	Engineering Physics	10
Select one elective	Engineering Physics	10
	st be Level 1 or higher	10
Elective unit ind		
	Credit Points	40
Year 2		
Spring session		
ENGR 2001	Automated Manufacturing	10
ELEC 2008	Microcontrollers and PLCs	10
ENGR 3029	Specialisation Workshop 1	10
Select one elective		10
Elective unit mu	st be Level 2 or higher	
	Credit Points	40
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
MECH 2003	Mechanics of Materials	10
ELEC 2001	Circuit Theory	10
ENGR 3030	Specialisation Workshop 2	10
Industrial Experienc		
ENGR 2033	Industrial Experience (Engineering	0
	Technologist)	
	Credit Points	40
Year 3		
Spring session		
MECH 4003	Mobile Robotics	10
ENGR 3014	Engineering Science Project 2	10
ELEC 3011	Power and Machines	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
ELEC 1001	Digital Systems 1	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

Replaced Subjects

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

ELEC 2010 Power and Machines, replaced by ELEC 3011 Power and Machines

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 sequences below.

Start-year intake

Course	Title	Credit Points
Year 1		
Autumn session		
MATH 1016	Mathematics for Engineers 1	10
ENGR 1011	Engineering Physics	10
BBus core unit 1		10
BBus core unit 2		10
	Credit Points	40
Spring session		
MATH 1019	Mathematics for Engineers 2	10
PROC 1008	Introduction to Materials Engineering	10
BBus core unit 3		10
BBus core unit 4		10
	Credit Points	40
Year 2		
Autumn session		
ELEC 1006	Engineering Computing	10
BBus Professional S	ubject 1	10
BBus Professional S	ubject 2	10
BBus Major Subject	1	10
	Credit Points	40
Spring session		
ELEC 1003	Electrical Fundamentals	10
ENGR 1018	Fundamentals of Mechanics	10
BBus Major Subject	2	10
BBus Major Subject	3	10
	Credit Points	40
Year 3		
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
MECH 2003	Mechanics of Materials	10
ELEC 2001	Circuit Theory	10
ELEC 1001	Digital Systems 1	10
	Credit Points	40
Spring session		
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 2001	Automated Manufacturing	10

ELEC 3011	Power and Machines	10
ELEC 2008	Microcontrollers and PLCs	10
	Credit Points	40
Year 4		
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
ELEC 2004	Electronics	10
BBus Major Subjec	et 4	10
	Credit Points	40
Spring session		
MECH 4003	Mobile Robotics	10
BBus Major Subject	pt 5	10
BBus Major Subjec	et 6	10
BBus Major Subjec	pt 7	10
Industrial Experien	ce	
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	40
Year 5		
Autumn session		
MECH 4004	Robotics	10
ENGR 4025	Final Year Project 1 (UG Engineering)	10
Business Professio	onal Subject 3	10
Business Major Su	bject 8	10
	Credit Points	40
Spring session		
ENGR 4026	Final Year Project 2 (UG Engineering)	10
ELEC 3008	Instrumentation and Measurement	10
From Spring 2022 Instrumentation ar	ELEC 3008 is replaced with ELEC 4009 nd Measurement	
MECH 3006	Mechatronic Design	10
Business Professio	5	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

Replaced Subjects

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

ELEC 3008 Instrumentation and Measurement, replaced by ELEC 4009 Instrumentation and Measurement

ELEC 2010 Power and Machines, replaced by ELEC 3011 Power and Machines

Mid-year intake

Course	Title	Credit Points
Year 1		
Spring session		
MATH 1016	Mathematics for Engineers 1	10
PROC 1008	Introduction to Materials Engineering	10
BBus Core Subject 1		10

BBus Core Subject	2	10
	Credit Points	40
Autumn session		
MATH 1019	Mathematics for Engineers 2	10
ENGR 1011	Engineering Physics	10
BBus Core Subject		10
BBus Core Subject		10
¥	Credit Points	40
Year 2		
Spring session	The state of The design state	10
ELEC 1003	Electrical Fundamentals	10
ENGR 1018	Fundamentals of Mechanics	10
BBus Major Subject		10
BBus Major Subjee		10
Autumn session	Credit Points	40
ELEC 1006	Engineering Computing	10
BBus Professional		10
BBus Professional	,	10
BBus Major Subject	•	10
	Credit Points	
Year 3	Credit Points	40
Spring session		
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 2001	Automated Manufacturing	10
ELEC 3011	Power and Machines	10
ELEC 2008	Microcontrollers and PLCs	10
LLLC 2000	Credit Points	40
Autumn session	Creat Points	-+0
MECH 2001	Kinematics and Kinetics of Machines	10
MECH 2003	Mechanics of Materials	10
ELEC 2001	Circuit Theory	10
ELEC 1001	Digital Systems 1	10
	Credit Points	40
Year 4		
Spring session		
MECH 4003	Mobile Robotics	10
BBus Major Subject	ct 4	10
BBus Major Subject		10
BBus Major Subject	ct 6	10
	Credit Points	40
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
ELEC 2004	Electronics	10
BBus Major Subject	ct 7	10
Industrial Experier	ice	
ENGR 3017	Industrial Experience (Engineering)	C
	Credit Points	40
Year 5		
Spring session		
ENGR 4025	Final Year Project 1 (UG Engineering)	10
ELEC 3008	Instrumentation and Measurement	10
	ELEC 3008 is replaced with ELEC 4009	
Instrumentation a		
MECH 3006	Mechatronic Design	10

Business Professional Subject 3		10
	Credit Points	40
Autumn session		
ENGR 4026	Final Year Project 2 (UG Engineering)	10
MECH 4004	Robotics	10
Business Professional Subject 4		10
Business Major Subject 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

Replaced Subjects

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

ELEC 3008 Instrumentation and Measurement, replaced by ELEC 4009 Instrumentation and Measurement

ELEC 2010 Power and Machines, replaced by ELEC 3011 Power and Machines

Bachelor of Engineering (Honours)

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

Start-year intake

Course	Title	Credit
Year 1		Points
Autumn session		
Select one of the f	iollowing:	10
MATH 1021	Mathematics for Engineers Preliminary	10
	з ,	
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 f	ollowing:	10
MATH 1016	Mathematics for Engineers 1	
MATH 1019	Mathematics for Engineers 2	
ENGR 1018	Fundamentals of Mechanics	10
ELEC 1003	Electrical Fundamentals	10
Select one elective		10
Elective unit m	nust be Level 1 or higher	
	Credit Points	40
Year 2		
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
MECH 2003	Mechanics of Materials	10
ELEC 2001	Circuit Theory	10
ELEC 1001	Digital Systems 1	10
-	Credit Points	40

Spring session		
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 2001	Automated Manufacturing	
ELEC 3011	Power and Machines	10
ELEC 2008	Microcontrollers and PLCs	10
	Credit Points	40
Year 3		
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
ELEC 2004	Electronics	10
MECH 4003	Mobile Robotics	10
	Credit Points	40
Spring session		
MECH 3006	Mechatronic Design	10
One alternate subject		10
Select one elective		10
One alternate subject		10
Elective unit must be Level 2 or higher		

Industrial Experience ENGR 3017 Industrial Experience (Engineering) 0 **Credit Points** 40 Year 4 Autumn session **MECH 4004** Robotics 10 ENGR 4025 Final Year Project 1 (UG Engineering) 10 One alternate subject 10 Select one elective 10 · Elective unit must be Level 2 or higher

	Credit Points	40
Spring session		
MECH 4002	Computer Aided Engineering	10
ENGR 4026	Final Year Project 2 (UG Engineering)	10
One alternate subject		10
Select one elective		10
 Elective unit 	must be Level 2 or higher	

Credit Points	40
Total Credit Points	320

Replaced Subjects

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

ELEC 2010 Power and Machines, replaced by ELEC 3011 Power and Machines

Mid-year intake

Course	Title	Credit Points
Year 1		
Spring session		
Select one of the foll	owing:	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	
Autumn session		
Select one of the f	ollowing:	10
MATH 1016	Mathematics for Engineers 1	
MATH 1019	Mathematics for Engineers 2	
ELEC 1006	Engineering Computing	
ENGR 1011		
Select one elective		10
Elective unit m	nust be Level 1 or higher	
	Credit Points	40
Year 2		
Spring session		
ENGR 2001	Automated Manufacturing	10
ELEC 2008	Microcontrollers and PLCs	10
One alternate subj	ect	10
Select one elective		10
Elective unit m	nust be Level 2 or higher	
	Credit Points	40
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
MECH 2003	Mechanics of Materials	10
ELEC 2001	Circuit Theory	10
ELEC 1001	Digital Systems 1	10
	Credit Points	40
Year 3		
Spring session		
MECH 3006	Mechatronic Design	10
MECH 3004	Dynamics of Mechanical Systems	10
ELEC 3011	Power and Machines	10
One alternate subj		10
Autumn session	Credit Points	40
MECH 3005	Mechanical Design	10
MECH 3003	Advanced Dynamics	10
ELEC 2004	Electronics	10
MECH 4003	Mobile Robotics	10
Industrial Experier	ice	
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
One alternate subject		10
Select one elective		10
 Elective unit m 	nust be Level 2 or higher	
	Credit Points	40
Autumn session		
MECH 4004	Robotics	10
ENGR 4025	Final Year Project 1 (UG Engineering)	10
One alternate subj	ect	10
Select one elective	3	10

· Elective unit must 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

Replaced Subjects

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

ELEC 2010 Power and Machines, replaced by ELEC 3011 Power and Machines

Related Programs

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

Bachelor of Engineering Science (3691) (https://

hbook.westernsydney.edu.au/programs/bachelor-engineeringscience/)