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

Campus	Mode	Advice
Parramatta Campus - Victoria Road	Internal	Major Advice (edbe@westernsydney.edu.au)
Parramatta City Campus-Macquarie Street	Internal	Major Advice (edbe@westernsydney.edu.au)
Penrith Campus	Internal	Major Advice (edbe@westernsydney.edu.au)

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

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
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		
Autumn session		
MECH 3001	Advanced Dynamics	10
MECH 3005	Mechanical Design	10
Select one Alternate Subject		10
Select one elective		10
	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		

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 subject		10
Select one elective		10
	Credit Points	**40**
Spring session		
ENGR 4036	Advanced Engineering Thesis 2: Detailed Investigations	10
Select one Alternate 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
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 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 subject		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
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		
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		
One alternate subject		10
	Credit Points	**40**
Autumn session		
MECH 3001	Advanced Dynamics	10
MECH 3005	Mechanical Design	10
Select one elective		10
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: Preliminary Investigations	10
MECH 3004	Dynamics of Mechanical Systems	10
Select two electives		20
	Credit Points	**40**
Autumn session		
ENGR 4036	Advanced Engineering Thesis 2: Detailed Investigations	10
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
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 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 following:		10
MATH 1021	Mathematics for Engineers Preliminary	
MATH 1016	Mathematics for Engineers 1	
Note: All students are required to enrol in MATH 1021 Mathematics for Engineers Preliminary first and undertake a readiness test at the 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.		
	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	
MATH 1019	Mathematics for Engineers 2	
Select one elective		10
Note: Students who remained in MATH 1021 Mathematics for Engineers Preliminary during the first semester will be required to complete MATH 1016 Mathematics for Engineers 1 during second semester.		
These students must then complete MATH 1019 Mathematics for Engineers 2 during the Summer session.		
	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
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 Experience		
ENGR 2033	Industrial Experience (Engineering Technologist)	0
	Credit Points	**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
ELEC 2010	Power and Machines	10
Select one elective		10
Note: Elective units 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 following:		10
MATH 1021	Mathematics for Engineers Preliminary	
MATH 1016	Mathematics for Engineers 1	
ENGR 1018	Fundamentals of Mechanics	10
ELEC 1003	Electrical Fundamentals	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 elective		10
• Elective unit must be Level 1 or higher		
	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 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 Experience		
ENGR 2033	Industrial Experience (Engineering Technologist)	0
	Credit Points	**40**
Year 3		
Spring session		
MECH 4003	Mobile Robotics	10
ENGR 3014	Engineering Science Project 2	10
ELEC 2010	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**

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 Subject 1		10
BBus Professional Subject 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 2010	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 Subject 4		10
	Credit Points	**40**
Spring session		
MECH 4003	Mobile Robotics	10
BBus Major Subject 5		10
BBus Major Subject 6		10
BBus Major Subject 7		10
Industrial Experience		
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 Professional Subject 3		10
Business Major Subject 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 ELEC 3008 is replaced with ELEC 4009 Instrumentation and Measurement		
MECH 3006	Mechatronic Design	10
Business Professional Subject 4		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

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 3		10
BBus Core Subject 4		10
	Credit Points	**40**
Year 2		
Spring session		
ELEC 1003	Electrical Fundamentals	10
ENGR 1018	Fundamentals of Mechanics	10
BBus Major Subject 1		10
BBus Major Subject 2		10
	Credit Points	**40**
Autumn session		
ELEC 1006	Engineering Computing	10
BBus Professional Subject 1		10
BBus Professional Subject 2		10
BBus Major Subject 3		10
	Credit Points	**40**
Year 3		
Spring session		
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 2001	Automated Manufacturing	10
ELEC 2010	Power and Machines	10
ELEC 2008	Microcontrollers and PLCs	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 4		
Spring session		
MECH 4003	Mobile Robotics	10
BBus Major Subject 4		10
BBus Major Subject 5		10
BBus Major Subject 6		10
	Credit Points	**40**
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
ELEC 2004	Electronics	10
BBus Major Subject 7		10
Industrial Experience		
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	**40**
Year 5		
Spring session		
ENGR 4025	Final Year Project 1 (UG Engineering)	10
ELEC 3008	Instrumentation and Measurement	10
From Spring 2022 ELEC 3008 is replaced with ELEC 4009 Instrumentation and Measurement		
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**

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 Points
Year 1		
Autumn session		
Select one of the following:		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 following:		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 must 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	10
ELEC 2010	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**

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 elective		10
• Elective unit must 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 subject		10
Select one elective		10
• Elective unit 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
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 2010	Power and Machines	10
One alternate subject		10
	Credit Points	**40**
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
ELEC 2004	Electronics	10
MECH 4003	Mobile Robotics	10
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
One alternate subject		10
Select one elective		10
• Elective unit must 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 subject		10
Select one elective		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

Major Structure 2024

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.

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
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		
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
	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 Experience		
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
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		
MECH 3006	Mechatronic Design	10
Select one elective 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 Experience		
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	**40**
Year 4		
Spring session		
ENGR 4043	Advanced Engineering Thesis 1: Preliminary Investigations	20
MECH 4003	Mobile Robotics	10
Select one elective or Minor subject		10
	Credit Points	**40**

Autumn session		
ENGR 4044	Advanced Engineering Thesis 2: Detailed Investigations	20
MECH 4004	Robotics	10
Select one elective or minor subject		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

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.

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 following:		10
MATH 1021	Mathematics for Engineers Preliminary	
MATH 1016	Mathematics for Engineers 1	
Note: All students are required to enrol in MATH 1021 Mathematics for Engineers Preliminary first and undertake a readiness test at the 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.		
	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 following:		10
MATH 1016	Mathematics for Engineers 1	
MATH 1019	Mathematics for Engineers 2	
Note: Students who remained in MATH 1021 Mathematics for Engineers Preliminary during the first semester will be required to complete MATH 1016 Mathematics for Engineers 1 during second semester.		
These students must then complete MATH 1019 Mathematics for Engineers 2 during the Summer session.		
	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
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 Experience		
ENGR 2033	Industrial Experience (Engineering Technologist)	0
	Credit Points	**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 electives		20
Note: Elective subjects must be level 2 or higher		
	Credit Points	**40**
	Total Credit Points	**240**

Mid-year intake

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 following:		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 following:		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 subject 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 Experience		
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
MECH 3004	Dynamics of Mechanical Systems	10
Select one elective		10
• Elective subject must be Level 2 or higher		
	Credit Points	**40**
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
ENGR 3014	Engineering Science Project 2	10
ELEC 1001	Digital Systems 1	10
	Credit Points	**40**
	Total Credit Points	**240**

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 Subject 1		10
BBus Professional Subject 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 1		10
BBus Major Subject 2		10
	Credit Points	**40**
Year 4		
Autumn session		
MECH 3005	Mechanical Design	10
ELEC 2004	Electronics	10
BBus Major Subject 3		10
BBus Major Subject 4		10
	Credit Points	**40**
Spring session		
ELEC 4009	Instrumentation and Measurement	10
ELEC 2010	Power and Machines	10
BBus Major Subject 5		10
BBus Major Subject 6		10
Industrial Experience		
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	**40**
Year 5		
Autumn session		
MECH 4004	Robotics	10
MECH 3001	Advanced Dynamics	10
BBus Major Subject 7		10
BBus Major Subject 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 Subject 3		10
BBus Professional Subject 4		10
	Credit Points	**40**
	Total Credit Points	**440**

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**
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 Subject 3		10
BBus Core Subject 4		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 Professional Subject 1		10
BBus Professional Subject 2		10
	Credit Points	**40**
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
ELEC 2004	Electronics	10
BBus Major Subject 1		10
BBus Major Subject 2		10
	Credit Points	**40**
Year 4		
Spring session		
ELEC 2008	Microcontrollers and PLCs	10
ELEC 2010	Power and Machines	10
BBus Major Subject 3		10
BBus Major Subject 4		10
	Credit Points	**40**
Autumn session		
MECH 3005	Mechanical Design	10
MECH 3001	Advanced Dynamics	10
MECH 4004	Robotics	10
BBus Major Subject 5		10
Industrial Experience		
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	**40**
Year 5		
Spring session		
ELEC 4009	Instrumentation and Measurement	10
BBus Major Subject 6		10
BBus Major Subject 7		10
BBus Major Subject 8		10
	Credit Points	**40**
Autumn session		
ENGR 4041	Final Year Project 1 (UG Engineering)	20
BBus Professional Subject 3		10
BBus Professional 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**

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.

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 following:		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 following:		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 2010	Power and Machines	10
MECH 4003	Mobile Robotics	10
ELEC 4009	Instrumentation and Measurement	10
Industrial Experience		
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 or minor subjects		20
	Credit Points	**40**
	Total Credit Points	**320**

Mid-year intake

Course	Title	Credit Points
Year 1		
Spring session		
ENGR 1018	Fundamentals of Mechanics	10
ELEC 1003	Electrical Fundamentals	10
PROC 1008	Introduction to Materials Engineering	10
Select one of the following:		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 following:		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 2010	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		
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**

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/)