ADVANCED MANUFACTURING, TESTAMUR MAJOR (T126)

Western Sydney University Major Code: T126

Previous Code: MT3048.1

Available to students in other Western Sydney University programs? No

Manufacturing is continuously transforming as it integrates automation, analytics, intelligence, digitalisation, and Internet of Things (IoT) into physical operations. In this major, students integrate techniques and methods to improve the sustainability and efficiency of manufacturing, taking advantage of digitisation tools. Students tackle complex problems, propose innovative solutions, and apply critical thinking to industry problems considering social, ethical and environmental factors. Job opportunities are varied and include Digital Product Design Engineer, Digital Process Engineer, Additive Manufacturing Engineer, Digital Twins Engineer, Systems Engineer, Automation Specialist, Robotics Specialists, Advanced Sensors Specialists, Industry 4.0 Transformation Specialist. All students complete a mandatory industrial placement.

Location

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

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 (Honours) (3740)

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

*** All students undertaking the Bachelor of Engineering (Honours) are required to enrol in** MATH 1021 Mathematics for Engineers Preliminary **and undertake a readiness test at the beginning of their study.**

The readiness test will be conducted at the beginning of the first semester of enrolment and the result will be used to 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.

Students remaining in MATH 1021 Mathematics for Engineers Preliminary will be required to complete MATH 1016 Mathematics for Engineers 1 during second semester and will be encouraged to complete MATH 1019 Mathematics for Engineers 2 during the Summer session.

**** 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

Course	Title	Credit Points
Year 1		
Autumn session		
ENGR 1011	Engineering Physics	10
ELEC 1006	Engineering Computing	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
ENGR 2035	Modern Digital Design and Development	10
	Credit Points	**40**
Spring session		
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 2001	Automated Manufacturing	10
ELEC 2008	Microcontrollers and PLCs	10
Select one elective** or minor subject		10
	Credit Points	**40**
Year 3		
Autumn session		
PROC 2003	Materials Selection and Design	10
MECH 3005	Mechanical Design	10
ENGR 3033	Digital Manufacturing and IIoT	10
Select one elective** or minor subject		10
	Credit Points	**40**
Spring session		
MECH 4003	Mobile Robotics	10
ENGR 4039	Design for Advanced Manufacturing	10
MECH 3006	Mechatronic Design	10
MECH 4002	Computer Aided Engineering	10

Industrial Experience		
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	**40**
Year 4		
Autumn session		
ENGR 4041	Final Year Project 1 (UG Engineering)	20
MECH 4004	Robotics	10
PROC 3008	Materials Processing and Applications	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		
ENGR 1011	Engineering Physics	10
ELEC 1006	Engineering Computing	10
ENGR 1024	Introduction to Engineering Practice	10
Select one of the following:		10
MATH 1019	Mathematics for Engineers 2	
MATH 1016	Mathematics for Engineers 1	
	Credit Points	**40**
Year 2		
Spring session		
ENGR 2001	Automated Manufacturing	10
ELEC 2008	Microcontrollers and PLCs	10
Select two electives** or minor subjects		20
	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 2035	Modern Digital Design and Development	10
	Credit Points	**40**
Year 3		
Spring session		
MECH 4002	Computer Aided Engineering	10
ENGR 4039	Design for Advanced Manufacturing	10
MECH 3006	Mechatronic Design	10
MECH 3004	Dynamics of Mechanical Systems	10
	Credit Points	**40**
Autumn session		
PROC 3008	Materials Processing and Applications	10
MECH 3005	Mechanical Design	10
ENGR 3033	Digital Manufacturing and IIoT	10
PROC 2003	Materials Selection and Design	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		
ENGR 4042	Final Year Project 2 (UG Engineering)	20
MECH 4004	Robotics	10
Select one elective** or minor subject		10
	Credit Points	**40**
	Total Credit Points	**320**

Bachelor of Engineering Advanced (Honours) (3771)

Qualification for this award requires the successful completion of 320 credit points, which include the subjects listed in the recommended sequence 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		
MATH 1035	Mathematics for Engineers 2 (Advanced)	10
ELEC 1003	Electrical Fundamentals	10
ENGR 1018	Fundamentals of Mechanics	10
ENGR 2023	Advanced Engineering Physics 2	10
	Credit Points	**40**
Year 2		
Autumn session		
MECH 2003	Mechanics of Materials	10
MECH 2001	Kinematics and Kinetics of Machines	10
ELEC 2001	Circuit Theory	10
ENGR 2035	Modern Digital Design and Development	10
	Credit Points	**40**
Spring session		
MECH 3004	Dynamics of Mechanical Systems	10
PROC 1008	Introduction to Materials Engineering	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		
PROC 3008	Materials Processing and Applications	10
MECH 3005	Mechanical Design	10
ENGR 3033	Digital Manufacturing and IIoT	10
BUSM 2049	Creative and Innovative Thinkers	10
	Credit Points	**40**
Spring session		
MECH 4003	Mobile Robotics	10
ENGR 4039	Design for Advanced Manufacturing	10
MECH 3006	Mechatronic Design	10
ELEC 2008	Microcontrollers and PLCs	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
Select two electives** or minor subjects		20
Electives 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 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		
ENGR 2001	Automated Manufacturing	10
Select one elective** or Minor subject		10
ELEC 2008	Microcontrollers and PLCs	10
PROC 1008	Introduction to Materials Engineering	10
	Credit Points	**40**
Autumn session		
MECH 2003	Mechanics of Materials	10
MECH 2001	Kinematics and Kinetics of Machines	10
ELEC 2001	Circuit Theory	10
ENGR 2035	Modern Digital Design and Development	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
ENGR 4039	Design for Advanced Manufacturing	10
MECH 3006	Mechatronic Design	10
MECH 3004	Dynamics of Mechanical Systems	10
	Credit Points	**40**
Autumn session		
PROC 3008	Materials Processing and Applications	10
MECH 3005	Mechanical Design	10
ENGR 3033	Digital Manufacturing and IIoT	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
Select two electives** or minor subjects		20
	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**

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)/ 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
BBus Core Subject 1		10
BBus Core Subject 2		10
	Credit Points	**40**
Spring session		
PROC 1008	Introduction to Materials Engineering	10
ELEC 1003	Electrical Fundamentals	10
BBus Core Subject 3		10
BBus Core Subject 4		10
	Credit Points	**40**
Year 2		
Autumn session		
ENGR 1018	Fundamentals of Mechanics	10
ENGR 1024	Introduction to Engineering Practice	10
MATH 1019	Mathematics for Engineers 2	10
BBus Professional Subject 1		10
	Credit Points	**40**
Spring session		
ELEC 2008	Microcontrollers and PLCs	10
ENGR 4039	Design for Advanced Manufacturing	10
ENGR 2001	Automated Manufacturing	10
BBus Professional Subject 2		10
	Credit Points	**40**
Year 3		
Autumn session		
MECH 2003	Mechanics of Materials	10
PROC 2003	Materials Selection and Design	10
ELEC 1006	Engineering Computing	10
ENGR 2035	Modern Digital Design and Development	10
	Credit Points	**40**
Spring session		
MECH 4002	Computer Aided Engineering	10
MECH 4003	Mobile Robotics	10
BBus Major Subject 1		10
BBus Major Subject 2		10
	Credit Points	**40**
Year 4		
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
ELEC 2001	Circuit Theory	10
BBus Major Subject 3		10
BBus Major Subject 4		10
	Credit Points	**40**
Spring session		
MECH 3006	Mechatronic Design	10
MECH 3004	Dynamics of Mechanical Systems	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		
PROC 3008	Materials Processing and Applications	10
MECH 3005	Mechanical Design	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
BBus Professional Subject 3		10
BBus Professional Subject 4		10
	Credit Points	**40**
Year 6		
Autumn session		
ENGR 4042	Final Year Project 2 (UG Engineering)	20
ENGR 3033	Digital Manufacturing and IIoT	10
MECH 4004	Robotics	10
	Credit Points	**40**
	Total Credit Points	**440**

Mid-year intake

Course	Title	Credit Points
Year 1		
Spring session		
PROC 1008	Introduction to Materials Engineering	10
ENGR 1024	Introduction to Engineering Practice	10
BBus Core Subject 1		10
BBus Core Subject 2		10
	Credit Points	**40**
Autumn session		
MATH 1016	Mathematics for Engineers 1	10
ENGR 1011	Engineering Physics	10
ENGR 1018	Fundamentals of Mechanics	10
ELEC 1006	Engineering Computing	10
	Credit Points	**40**
Year 2		
Spring session		
ELEC 1003	Electrical Fundamentals	10
ENGR 4039	Design for Advanced Manufacturing	10
BBus Core Subject 3		10
BBus Core Subject 4		10
	Credit Points	**40**
Autumn session		
PROC 2003	Materials Selection and Design	10
MATH 1019	Mathematics for Engineers 2	10
MECH 2003	Mechanics of Materials	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		
ENGR 2035	Modern Digital Design and Development	10
ELEC 2001	Circuit Theory	10
BBus Major Subject 1		10
BBus Major Subject 2		10
	Credit Points	**40**
Year 4		
Spring session		
ELEC 2008	Microcontrollers and PLCs	10
MECH 4002	Computer Aided Engineering	10
BBus Major Subject 3		10
BBus Major Subject 4		10
	Credit Points	**40**
Autumn session		
PROC 3008	Materials Processing and Applications	10
MECH 3005	Mechanical Design	10
ENGR 3033	Digital Manufacturing and IIoT	10
BBus Major Subject 5		10
Industrial Experience		
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	**40**
Year 5		
Spring session		
MECH 3006	Mechatronic Design	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
MECH 4004	Robotics	10
BBus Professional Subject 3		10
	Credit Points	**40**
Year 6		
Spring session		
ENGR 4042	Final Year Project 2 (UG Engineering)	20
MECH 4003	Mobile Robotics	10
BBus Professional Subject 4		10
	Credit Points	**40**
	Total Credit Points	**440**

Bachelor of Engineering Science (3691)

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

*** All students undertaking the Bachelor of Engineering Science are required to enrol in** MATH 1021 Mathematics for Engineers Preliminary **and undertake a readiness test at the beginning of their study.**

The readiness test will be conducted at the beginning of the first semester of enrolment and the result will be used to 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.

Students remaining in MATH 1021 Mathematics for Engineers Preliminary will be required to complete MATH 1016 Mathematics for Engineers 1 during second semester and will be encouraged to complete MATH 1019 Mathematics for Engineers 2 during the Summer session.

Students who finish MATH 1021 Mathematics for Engineers Preliminary will then use this subject as an elective.

Start-year intake

Course	Title	Credit Points
Year 1		
Autumn session		
ENGR 1011	Engineering Physics	10
ELEC 1006	Engineering Computing	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
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	
	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		
ENGR 3013	Engineering Science Project 1	10
MECH 3005	Mechanical Design	10
ENGR 2035	Modern Digital Design and Development	10

ENGR 3033	Digital Manufacturing and IIoT	10
	Credit Points	**40**
Spring session		
ENGR 3014	Engineering Science Project 2	10
ENGR 4039	Design for Advanced Manufacturing	10
Select two electives		20
• Elective 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 3029	Specialisation Workshop 1	10
ENGR 2001	Automated Manufacturing	10
ELEC 2008	Microcontrollers and PLCs	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
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		
ENGR 3013	Engineering Science Project 1	10
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 4039	Design for Advanced Manufacturing	10
Select one elective (Level 2 or higher)		10
	Credit Points	**40**
Autumn session		
ENGR 3014	Engineering Science Project 2	10
MECH 3005	Mechanical Design	10
ENGR 2035	Modern Digital Design and Development	10
ENGR 3033	Digital Manufacturing and IIoT	10
	Credit Points	**40**
	Total Credit Points	**240**

Major Sequence 2022-23

If you commenced in 2024 or later please refer to the Sequence 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.

Select the link for your program below to see details of the major

Bachelor of Engineering (Honours)

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

*** All students undertaking the Bachelor of Engineering (Honours) are required to enrol in** MATH 1021 Mathematics for Engineers Preliminary **and undertake a readiness test at the beginning of their study.**

The readiness test will be conducted at the beginning of the first semester of enrolment and the result will be used to 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.

Students remaining in MATH 1021 Mathematics for Engineers Preliminary will be required to complete MATH 1016 Mathematics for Engineers 1 during second semester and will be encouraged to complete MATH 1019 Mathematics for Engineers 2 during the Summer session.

Start-year intake

Course	Title	Credit Points
Year 1		
Autumn session		
ENGR 1011	Engineering Physics	10
ELEC 1006	Engineering Computing	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
Select one elective		10
• Electives can be any Level for Year 1 Elective		
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
ENGR 2035	Modern Digital Design and Development	10
	Credit Points	**40**
Spring session		
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 2001	Automated Manufacturing	10
ELEC 2008	Microcontrollers and PLCs	10
Select one elective		10
• Electives can be any Level 2 or higher for Years 2-4 Electives		
	Credit Points	**40**
Year 3		
Autumn session		
PROC 3008	Materials Processing and Applications	10
MECH 3005	Mechanical Design	10
ENGR 3033	Digital Manufacturing and IIoT	10
Minor Alternate Subject		10
	Credit Points	**40**
Spring session		
MECH 4003	Mobile Robotics	10
MECH 3006	Mechatronic Design	10
ENGR 4039	Design for Advanced Manufacturing	10
Minor Alternate Subject		10
Industrial Experience		
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	**40**
Year 4		
Autumn session		
ENGR 4025	Final Year Project 1 (UG Engineering)	10
MECH 4004	Robotics	10
Minor Alternate Subject		10
Select one elective		10
• Elective subject must be Level 2 or higher		
	Credit Points	**40**
Spring session		
ENGR 4026	Final Year Project 2 (UG Engineering)	10
MECH 4002	Computer Aided Engineering	10
Minor Alternate Subject		10
Select one elective		10
• Elective subjects must be Level 2 or higher		
	Credit Points	**40**
	Total Credit Points	**320**

Minor Alternate Subjects

Alternate subjects may be used to complete one of the minors listed below.

Biomedical Engineering, Minor (https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/biomedical-engineering-minor/)
Indigenous Australian Studies, Minor (https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/indigenous-australian-studies-minor/)
Materials Engineering, Minor (https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/materials-engineering-minor/)

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 1019	Mathematics for Engineers 2	
MATH 1016	Mathematics for Engineers 1	
ENGR 1011	Engineering Physics	10
ELEC 1006	Engineering Computing	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
Select one elective (Level 2 or higher)		10
Minor Alternate 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
ENGR 2035	Modern Digital Design and Development	10
	Credit Points	**40**
Year 3		
Spring session		
MECH 4003	Mobile Robotics	10
MECH 3006	Mechatronic Design	10
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 4039	Design for Advanced Manufacturing	10
Industrial Experience		
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	**40**
Autumn session		
PROC 3008	Materials Processing and Applications	10
MECH 3005	Mechanical Design	10
ENGR 3033	Digital Manufacturing and IIoT	10
Minor Alternate Subject		10
Industrial Experience		
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	**40**

Year 4		
Spring session		
ENGR 4025	Final Year Project 1 (UG Engineering)	10
MECH 4002	Computer Aided Engineering	10
Minor Alternate Subject		10
Select one elective (Level 2 or higher)		10
	Credit Points	**40**
Autumn session		
ENGR 4026	Final Year Project 2 (UG Engineering)	10
MECH 4004	Robotics	10
Minor Alternate Subject		10
Select one elective (Level 2 or higher)		10
	Credit Points	**40**
	Total Credit Points	**320**

Minor Alternate Subjects

Alternate subjects may be used to complete one of the minors listed below.

Biomedical Engineering, Minor (https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/biomedical-engineering-minor/)
Indigenous Australian Studies, Minor (https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/indigenous-australian-studies-minor/)
Materials Engineering, Minor (https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/materials-engineering-minor/)

Bachelor of Engineering Advanced (Honours)

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		
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
ELEC 1003	Electrical Fundamentals	10
ENGR 1018	Fundamentals of Mechanics	10
Select one elective		10
	Credit Points	**40**
Year 2		
Autumn session		
MECH 2003	Mechanics of Materials	10
MECH 2001	Kinematics and Kinetics of Machines	10
ELEC 2001	Circuit Theory	10
ENGR 2035	Modern Digital Design and Development	10
	Credit Points	**40**
Spring session		
MECH 2005	Mathematics for Mechanical and Mechatronic Engineers	10
MECH 3004	Dynamics of Mechanical Systems	10
ELEC 2008	Microcontrollers and PLCs	10
ENGR 2001	Automated Manufacturing	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		
PROC 3008	Materials Processing and Applications	10
MECH 3005	Mechanical Design	10
ENGR 3033	Digital Manufacturing and IIoT	10
Minor Alternate Subject		10
	Credit Points	**40**
Spring session		
MECH 4003	Mobile Robotics	10
MECH 3006	Mechatronic Design	10
ENGR 4039	Design for Advanced Manufacturing	10
Minor Alternate Subject		10
Industrial Experience		
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	**40**
Year 4		
Autumn session		
ENGR 4037	Advanced Engineering Thesis 1: Preliminary Investigations	10
MECH 4004	Robotics	10
Minor Alternate Subject		10
Select one elective		10
• Elective unit must be Level 2 or higher		
	Credit Points	**40**
Spring session		
ENGR 4036	Advanced Engineering Thesis 2: Detailed Investigations	10
Minor Alternate subject		10
Select two electives		20
• Elective subjects must be Level 2 or higher		
	Credit Points	**40**
	Total Credit Points	**320**

Alternate Pool

Subject	Title	Credit Points
BIOS 1022	Introduction to Human Biology	10
CEDS 3001	Bridging the Gap: Re-engaging Indigenous Learners	10
ENGR 4038	Biomedical Electronics	10
ENGR 3004	Biomedical Signals and Data Analysis	10
HLTH 2003	Biomechanics	10
HUMN 1013	Contextualising Indigenous Australia (Day Mode)	10
HUMN 1058	Indigenous Landscapes	10
HUMN 2038	Pigments of the Imagination	10
HUMN 2048	Revaluing Indigenous Economics (Day Mode)	10
HUMN 3082	The Making of the 'Aborigines'	10

HUMN 3070	Rethinking Research with Indigenous Australians: Independent Study Project (Day Mode)	10
PERF 2011	From Corroborees to Curtain Raisers (Day Mode)	10
PROC 1008	Introduction to Materials Engineering	10
PROC 2003	Materials Selection and Design	10
PROC 4001	Advanced Materials Topics	10
PROC 4002	Engineering Materials from Waste	10
VISU 2003	From Ochre to Acrylics to New Technologies	10
WELF 3008	Learning through Indigenous Australian Community Service (Day Mode)	10

Minor Alternate Subjects

Alternate subjects may be used to complete one of the minors listed below.

Biomedical Engineering, Minor (https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/biomedical-engineering-minor/)
Indigenous Australian Studies, Minor (https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/indigenous-australian-studies-minor/)
Materials Engineering, Minor (https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/materials-engineering-minor/)

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

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		
MATH 1034	Mathematics for Engineers 1 (Advanced)	10
ENGR 1018	Fundamentals of Mechanics	10
ELEC 1003	Electrical Fundamentals	10
ENGR 1024	Introduction to Engineering Practice	10
	Credit Points	**40**
Autumn session		
MATH 1035	Mathematics for Engineers 2 (Advanced)	10
ENGR 1047	Advanced Engineering Physics 1	10
ELEC 1006	Engineering Computing	10
ENGR 2035	Modern Digital Design and Development	10
	Credit Points	**40**
Year 2		
Spring session		
MECH 2005	Mathematics for Mechanical and Mechatronic Engineers	10
ENGR 2001	Automated Manufacturing	10
ELEC 2008	Microcontrollers and PLCs	10
Select one elective		10

- Elective unit must be Level 2 or higher

	Credit Points	**40**
Autumn session		
MECH 2003	Mechanics of Materials	10
MECH 2001	Kinematics and Kinetics of Machines	10
ELEC 2001	Circuit Theory	10
select one elective		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
ENGR 4039	Design for Advanced Manufacturing	10
MECH 3004	Dynamics of Mechanical Systems	10
	Credit Points	**40**
Autumn session		
PROC 3008	Materials Processing and Applications	10
MECH 3005	Mechanical Design	10
ENGR 3033	Digital Manufacturing and IIoT	10
Minor 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
Minor Alternate Subject		10
Minor Alternate Subject		10
Select one elective		10

- Elective unit must be Level 2 or higher

	Credit Points	**40**
Autumn session		
ENGR 4036	Advanced Engineering Thesis 2: Detailed Investigations	10
MECH 4004	Robotics	10
Minor Alternate Subject		10
Select one elective		10

- Elective unit must be Level 2 or higher

	Credit Points	**40**
	Total Credit Points	**320**

Alternate Pool

Subject	Title	Credit Points
BIOS 1022	Introduction to Human Biology	10
CEDS 3001	Bridging the Gap: Re-engaging Indigenous Learners	10
ENGR 4038	Biomedical Electronics	10

ENGR 3004	Biomedical Signals and Data Analysis	10
HLTH 2003	Biomechanics	10
HUMN 1013	Contextualising Indigenous Australia (Day Mode)	10
HUMN 1058	Indigenous Landscapes	10
HUMN 2038	Pigments of the Imagination	10
HUMN 2048	Revaluing Indigenous Economics (Day Mode)	10
HUMN 3082	The Making of the 'Aborigines'	10
HUMN 3070	Rethinking Research with Indigenous Australians: Independent Study Project (Day Mode)	10
PERF 2011	From Corroborees to Curtain Raisers (Day Mode)	10
PROC 1008	Introduction to Materials Engineering	10
PROC 2003	Materials Selection and Design	10
PROC 4001	Advanced Materials Topics	10
PROC 4002	Engineering Materials from Waste	10
VISU 2003	From Ochre to Acrylics to New Technologies	10
WELF 3008	Learning through Indigenous Australian Community Service (Day Mode)	10

Minor Alternate Subjects

Alternate subjects may be used to complete one of the minors listed below.

Biomedical Engineering, Minor (https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/biomedical-engineering-minor/)
Indigenous Australian Studies, Minor (https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/indigenous-australian-studies-minor/)
Materials Engineering, Minor (https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/materials-engineering-minor/)

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

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		
MATH 1016	Mathematics for Engineers 1	10
ENGR 1011	Engineering Physics	10
BBus Core Subject 1		10
BBus Core Subject 2		10
	Credit Points	**40**
Spring session		
MATH 1019	Mathematics for Engineers 2	10
ENGR 1018	Fundamentals of Mechanics	10
BBus Core Subject 3		10
BBus Core Subject 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		
PROC 1008	Introduction to Materials Engineering	10
ELEC 1003	Electrical Fundamentals	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
ENGR 2035	Modern Digital Design and Development	10
	Credit Points	**40**
Spring session		
ENGR 2001	Automated Manufacturing	10
MECH 3004	Dynamics of Mechanical Systems	10
ELEC 2008	Microcontrollers and PLCs	10
MECH 4003	Mobile Robotics	10
	Credit Points	**40**
Year 4		
Autumn session		
PROC 3008	Materials Processing and Applications	10
MECH 3005	Mechanical Design	10
ENGR 3033	Digital Manufacturing and IIoT	10
BBus Major Subject 4		10
	Credit Points	**40**
Spring session		
ENGR 4039	Design for Advanced Manufacturing	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		
ENGR 4025	Final Year Project 1 (UG Engineering)	10
MECH 4004	Robotics	10
BBus Professional Subject 3		10
BBus Major Subject 8		10
	Credit Points	**40**

Spring session		
ENGR 4026	Final Year Project 2 (UG Engineering)	10
MECH 4002	Computer Aided Engineering	10
MECH 3006	Mechatronic Design	10
BBus 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

Mid-year intake

Course	Title	Credit Points
Year 1		
Spring session		
MATH 1016	Mathematics for Engineers 1	10
ENGR 1018	Fundamentals of Mechanics	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		
PROC 1008	Introduction to Materials Engineering	10
ELEC 1003	Electrical Fundamentals	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		
ENGR 2001	Automated Manufacturing	10
MECH 3006	Mechatronic Design	10
ELEC 2008	Microcontrollers and PLCs	10
MECH 4003	Mobile Robotics	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
ENGR 2035	Modern Digital Design and Development	10
	Credit Points	**40**
Year 4		
Spring session		
ENGR 4039	Design for Advanced Manufacturing	10
BBus Major Subject 4		10
BBus Major Subject 5		10
BBus Major Subject 6		10
	Credit Points	**40**
Autumn session		
PROC 3008	Materials Processing and Applications	10
MECH 3005	Mechanical Design	10
ENGR 3033	Digital Manufacturing and IIoT	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
MECH 4002	Computer Aided Engineering	10
MECH 3004	Dynamics of Mechanical Systems	10
BBus Professional Subject 3		10
	Credit Points	**40**
Autumn session		
ENGR 4026	Final Year Project 2 (UG Engineering)	10
MECH 4004	Robotics	10
BBus Professional Subject 4		10
BBus 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

Bachelor of Engineering Science

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

*** All students undertaking the Bachelor of Engineering Science are required to enrol in** MATH 1021 Mathematics for Engineers Preliminary **and undertake a readiness test at the beginning of their study.**

The readiness test will be conducted at the beginning of the first semester of enrolment and the result will be used to 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.

Students remaining in MATH 1021 Mathematics for Engineers Preliminary will be required to complete MATH 1016 Mathematics for Engineers 1 during second semester and will be encouraged to complete MATH 1019 Mathematics for Engineers 2 during the Summer session.

Students who finish MATH 1021 Mathematics for Engineers Preliminary will then use this subject as an elective.

Start-year intake

Course	Title	Credit Points
Year 1		
Autumn session		
ENGR 1011	Engineering Physics	10
ELEC 1006	Engineering Computing	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
Select one elective		10
• Elective can be any Level for Year 1		
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
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		
ENGR 3013	Engineering Science Project 1	10
MECH 3005	Mechanical Design	10
ENGR 2035	Modern Digital Design and Development	10
ENGR 3033	Digital Manufacturing and IIoT	10
	Credit Points	**40**
Spring session		
ENGR 3014	Engineering Science Project 2	10
MECH 4003	Mobile Robotics	10
ENGR 4039	Design for Advanced Manufacturing	10
Select one elective		10
• Elective must be Level 2 or higher		
	Credit Points	**40**
	Total Credit Points	**240**

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	
ENGR 1011	Engineering Physics	10
ELEC 1006	Engineering Computing	10
Select one elective		10
• Elective unit must be Level 1 or higher		
	Credit Points	**40**
Year 2		
Spring session		
ENGR 3029	Specialisation Workshop 1	10
ENGR 2001	Automated Manufacturing	10
ELEC 2008	Microcontrollers and PLCs	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
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		
ENGR 3013	Engineering Science Project 1	10
MECH 4003	Mobile Robotics	10
MECH 3004	Dynamics of Mechanical Systems	10
ENGR 4039	Design for Advanced Manufacturing	10
	Credit Points	**40**
Autumn session		
ENGR 3014	Engineering Science Project 2	10
MECH 3005	Mechanical Design	10
ENGR 2035	Modern Digital Design and Development	10
ENGR 3033	Digital Manufacturing and IIoT	10
	Credit Points	**40**
	Total Credit Points	**240**

Related Programs

Bachelor of Engineering (Honours)/Bachelor of Business (3728) (https://hbook.westernsydney.edu.au/archives/2024-2025/programs/bachelor-engineering-honours-bachelor-business/)

Bachelor of Engineering (Honours) (3740) (https://hbook.westernsydney.edu.au/archives/2024-2025/programs/bachelor-engineering-honours/)

Bachelor of Engineering Advanced (Honours) (3771) (https://hbook.westernsydney.edu.au/archives/2024-2025/programs/bachelor-engineering-advanced-honours/)

Bachelor of Engineering Science (3691) (https://hbook.westernsydney.edu.au/archives/2024-2025/programs/bachelor-engineering-science/)