

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 300 to 450 hour industrial placement.

Location

Campus	Mode	Advice	Credit Points
Parramatta Campus - Victoria Road	Internal	Program Advice (edbe@westernsydney.edu.au)	40
Parramatta City Campus-Macquarie Street	Internal	Program Advice (edbe@westernsydney.edu.au)	
Penrith Campus	Internal	Program Advice (edbe@westernsydney.edu.au)	

Recommended 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
Digital Manufacturing and IIoT (not yet available)		10
Minor Alternate Subject		10
Credit Points		40
Spring session		
MECH 4003	Mobile Robotics	10
MECH 3006	Mechatronic Design	10
Design for Advanced Manufacturing (not yet available)		10
Minor Alternate Subject		10
Industrial Experience		

ENGR 3017	Industrial Experience (Engineering)	0	Minor Alternate Subject	10
	Credit Points	40	Credit Points	40
Year 4				
Autumn session				
ENGR 4025	Final Year Project 1 (UG Engineering)	10	MECH 2001	Kinematics and Kinetics of Machines
MECH 4004	Robotics	10	MECH 2003	Mechanics of Materials
Minor Alternate Subject		10	ELEC 2001	Circuit Theory
Select one elective		10	ENGR 2035	Modern Digital Design and Development
<ul style="list-style-type: none"> Elective subject must be Level 2 or higher 				
	Credit Points	40	Credit Points	40
Spring session				
ENGR 4026	Final Year Project 2 (UG Engineering)	10	MECH 4003	Mobile Robotics
MECH 4002	Computer Aided Engineering	10	MECH 3006	Mechatronic Design
Minor Alternate Subject		10	MECH 3004	Dynamics of Mechanical Systems
Select one elective		10	Design for Advanced Manufacturing (not yet available)	
<ul style="list-style-type: none"> Elective subjects must be Level 2 or higher 				
	Credit Points	40	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/2023-2024/majors-minors/biomedical-engineering-minor/)				
Indigenous Australian Studies, Minor (https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/indigenous-australian-studies-minor/)				
Materials Engineering, Minor (https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/materials-engineering-minor/)				
Mid-year intake				
Course	Title	Credit Points		
Year 1				
Spring session				
Select one of the following:		10	ENGR 3017	Industrial Experience (Engineering)
MATH 1021	Mathematics for Engineers Preliminary			0
MATH 1016	Mathematics for Engineers 1			40
ENGR 1018	Fundamentals of Mechanics	10	Credit Points	40
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		
<ul style="list-style-type: none"> 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 Subjects				
Alternate subjects may be used to complete one of the minors listed below.				
Biomedical Engineering, Minor (https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/biomedical-engineering-minor/)				
Indigenous Australian Studies, Minor (https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/indigenous-australian-studies-minor/)				
Materials Engineering, Minor (https://hbook.westernsydney.edu.au/archives/2023-2024/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	• Elective unit must be Level 2 or higher					
			Credit Points					
Year 1								
Autumn session								
MATH 1034	Mathematics for Engineers 1 (Advanced)	10	ENGR 4036	Advanced Engineering Thesis 2: Detailed Investigations				
ENGR 1024	Introduction to Engineering Practice	10	Minor Alternate subject	10				
ENGR 1047	Advanced Engineering Physics 1	10	Select two electives	20				
ELEC 1006	Engineering Computing	10	• Elective subjects must be Level 2 or higher					
Credit Points		40	Credit Points					
Spring session								
MATH 1035	Mathematics for Engineers 2 (Advanced)	10	Total Credit Points					
ELEC 1003	Electrical Fundamentals	10	320					
ENGR 1018	Fundamentals of Mechanics	10	Alternate Pool					
Select one elective		10	Subject	Title				
Credit Points		40	BIOS 1022	Introduction to Human Biology				
Year 2								
Autumn session								
MECH 2003	Mechanics of Materials	10	CEDS 3001	Bridging the Gap: Re-engaging Indigenous Learners				
MECH 2001	Kinematics and Kinetics of Machines	10	ENGR 4038	Biomedical Electronics				
ELEC 2001	Circuit Theory	10	ENGR 3004	Biomedical Signals and Data Analysis				
ENGR 2035	Modern Digital Design and Development	10	HLTH 2003	Biomechanics				
Credit Points		40	HUMN 1013	Contextualising Indigenous Australia (Day Mode)				
Spring session								
MECH 2005	Mathematics for Mechanical and Mechatronic Engineers	10	HUMN 1058	Indigenous Landscapes				
MECH 3004	Dynamics of Mechanical Systems	10	HUMN 2038	Pigments of the Imagination				
ELEC 2008	Microcontrollers and PLCs	10	HUMN 2048	Revaluing Indigenous Economics (Day Mode)				
ENGR 2001	Automated Manufacturing	10	HUMN 3082	The Making of the 'Aborigines'				
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.			HUMN 3070	Rethinking Research with Indigenous Australians: Independent Study Project (Day Mode)				
Credit Points		40	PERF 2011	From Corroborees to Curtain Raisers (Day Mode)				
Year 3								
Autumn session								
PROC 3008	Materials Processing and Applications	10	PROC 1008	Introduction to Materials Engineering				
MECH 3005	Mechanical Design	10	PROC 2003	Materials Selection and Design				
Digital Manufacturing and IIoT (not yet available)		10	PROC 4001	Advanced Materials Topics				
Minor Alternate Subject		10	PROC 4002	Engineering Materials from Waste				
Credit Points		40	VISU 2003	From Ochre to Acrylics to New Technologies				
Spring session								
MECH 4003	Mobile Robotics	10	WELF 3008	Learning through Indigenous Australian Community Service (Day Mode)				
MECH 3006	Mechatronic Design	10	Minor Alternate Subjects					
Design for Advanced Manufacturing (not yet available)		10	Alternate subjects may be used to complete one of the minors listed below.					
Minor Alternate Subject		10	Biomedical Engineering, Minor (https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/biomedical-engineering-minor/)					
Credit Points		40	Indigenous Australian Studies, Minor (https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/indigenous-australian-studies-minor/)					
Industrial Experience			Materials Engineering, Minor (https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/materials-engineering-minor/)					
ENGR 3017	Industrial Experience (Engineering)	0	Equivalent Subjects					
Credit Points		40	The subjects listed below count towards completion of this program for students who passed these subjects in 2021 or earlier.					
Year 4								
Autumn session								
ENGR 4037	Advanced Engineering Thesis 1: Preliminary Investigations	10	MECH 4005 Advanced Engineering Thesis 1: Preliminary Investigations, replaced by ENGR 4037 Advanced Engineering Thesis 1: Preliminary Investigations					
MECH 4004	Robotics	10						
Minor Alternate Subject		10						
Select one elective		10						

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
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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
	Credit Points	40

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
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Year 3

Spring session

MECH 4003	Mobile Robotics	10
MECH 3006	Mechatronic Design	10
Design for Advanced Manufacturing (not yet available)		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
Digital Manufacturing and IIoT (not yet available)		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
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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
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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/2023-2024/majors-minors/biomedical-engineering-minor/)	
	Indigenous Australian Studies, Minor (https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/indigenous-australian-studies-minor/)	

Materials Engineering, Minor (<https://hbook.westernsydney.edu.au/archives/2023-2024/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		Credit Points			
Year 1							
Autumn session							
MATH 1016	Mathematics for Engineers 1	10		ENGR 4025	Final Year Project 1 (UG Engineering)		
ENGR 1011	Engineering Physics	10		MECH 4004	Robotics		
BBus Core Subject 1		10		BBus Professional Subject 3			
BBus Core Subject 2		10		BBus Major Subject 8			
Credit Points		40		Credit Points			
Spring session							
MATH 1019	Mathematics for Engineers 2	10		ENGR 4026	Final Year Project 2 (UG Engineering)		
ENGR 1018	Fundamentals of Mechanics	10		MECH 4002	Computer Aided Engineering		
BBus Core Subject 3		10		MECH 3006	Mechatronic Design		
BBus Core Subject 4		10		BBus Professional Subject 4			
Credit Points		40		Credit Points			
Total Credit Points							
400							

Year 2

Course	Title	Credit Points
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
Credit Points		40

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
Digital Manufacturing and IIoT (not yet available)		10
BBus Major Subject 4		10
Credit Points		40

Spring session		
Design for Advanced Manufacturing (not yet available)		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
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
Year 3		
Autumn session		
MECH 2001	Kinematics and Kinetics of Machines	10
MECH 2003	Mechanics of Materials	10
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
	Credit Points	40
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
Digital Manufacturing and IIoT (not yet available)		10
	Credit Points	40
Spring session		
ENGR 3014	Engineering Science Project 2	10
MECH 4003	Mobile Robotics	10
Design for Advanced Manufacturing (not yet available)		10
Select one elective		10
• Elective must be Level 2 or higher		
	Credit Points	40
	Total Credit Points	240
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
Design for Advanced Manufacturing (not yet available)		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
Digital Manufacturing and IIoT (not yet available)		10
	Credit Points	40
	Total Credit Points	240

Major Sequence 2024

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.

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

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
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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
	Credit Points	40

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
	Credit Points	40

Spring session

ENGR 4042	Final Year Project 2 (UG Engineering)	20
Select two electives** or minor subjects		20
Credit Points		40
	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

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

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
	Credit Points	40

Industrial Experience			Year 3	
ENGR 3017	Industrial Experience (Engineering)	0	PROC 3008	Materials Processing and Applications
	Credit Points	40	MECH 3005	Mechanical Design
Year 4			ENGR 3033	Digital Manufacturing and IIoT
Spring session			BUSM 2049	Creative and Innovative Thinkers
ENGR 4041	Final Year Project 1 (UG Engineering)	20		Credit Points
MECH 4003	Mobile Robotics	10	MECH 4003	Mobile Robotics
Select one elective** or minor subject		10	ENGR 4039	Design for Advanced Manufacturing
	Credit Points	40	MECH 3006	Mechatronic Design
Autumn session			ELEC 2008	Microcontrollers and PLCs
ENGR 4042	Final Year Project 2 (UG Engineering)	20	Industrial Experience	
MECH 4004	Robotics	10	ENGR 3017	Industrial Experience (Engineering)
Select one elective** or minor subject		10		Credit Points
	Credit Points	40		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	Investigations
Year 1			Select two electives** or minor subjects
Autumn session			Electives must be Level 2 or higher
			Credit Points
			Total Credit Points
MATH 1034	Mathematics for Engineers 1 (Advanced)	10	320
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	BUSM 2047 Venture Makers Foundations, replaced by BUSM 2049 Creative and Innovative Thinkers
ELEC 1003	Electrical Fundamentals	10	
ENGR 1018	Fundamentals of Mechanics	10	
ENGR 2023	Advanced Engineering Physics 2	10	
	Credit Points	40	
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			

Year 2		Year 1	
Autumn session		Spring session	
MECH 2003	Mechanics of Materials	10	MATH 1034 Mathematics for Engineers 1 (Advanced) 10
MECH 2001	Kinematics and Kinetics of Machines	10	ENGR 1018 Fundamentals of Mechanics 10
ELEC 2001	Circuit Theory	10	ELEC 1003 Electrical Fundamentals 10
ENGR 2035	Modern Digital Design and Development	10	ENGR 2023 Advanced Engineering Physics 2 10
Credit Points		40	Credit Points 40
Spring session		Autumn session	
MECH 3004	Dynamics of Mechanical Systems	10	MATH 1035 Mathematics for Engineers 2 (Advanced) 10
PROC 1008	Introduction to Materials Engineering	10	ENGR 1024 Introduction to Engineering Practice 10
ENGR 2001	Automated Manufacturing	10	ENGR 1047 Advanced Engineering Physics 1 10
Select one elective** or Minor subject		10	ELEC 1006 Engineering Computing 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			Credit Points 40
Year 2		Year 2	
Spring session		Spring session	

of 200 Credit points will be automatically transferred to the B. Engineering (Honours) (3740) program.	40	ENGR 2001	Automated Manufacturing	10
		Select one elective** or Minor subject		10

		Start-year intake	Credit Points	
Course	Title			
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	BBus Professional Subject 2	10		
	Credit Points	40	Credit Points	40		
Year 5						
Autumn session						
PROC 3008	Materials Processing and Applications	10	ENGR 2035	Modern Digital Design and Development		
MECH 3005	Mechanical Design	10	ELEC 2001	Circuit Theory		
BBus Major Subject 7		10	BBus Major Subject 1			
BBus Major Subject 8		10	BBus Major Subject 2			
	Credit Points	40	Credit Points	40		
Spring session						
ENGR 4041	Final Year Project 1 (UG Engineering)	20	ELEC 2008	Microcontrollers and PLCs		
BBus Professional Subject 3		10	MECH 4002	Computer Aided Engineering		
BBus Professional Subject 4		10	BBus Major Subject 3			
	Credit Points	40	BBus Major Subject 4	10		
Year 6						
Autumn session						
ENGR 4042	Final Year Project 2 (UG Engineering)	20	PROC 3008	Materials Processing and Applications		
ENGR 3033	Digital Manufacturing and Ilot	10	MECH 3005	Mechanical Design		
MECH 4004	Robotics	10	ENGR 3033	Digital Manufacturing and Ilot		
	Credit Points	40	BBus Major Subject 5	10		
	Total Credit Points	440	Industrial Experience			
Mid-year intake						
Course	Title	Credit Points				
Year 1						
Spring session						
PROC 1008	Introduction to Materials Engineering	10	MECH 3006	Mechatronic Design		
ENGR 1024	Introduction to Engineering Practice	10	BBus Major Subject 6			
BBus Core Subject 1		10	BBus Major Subject 7			
BBus Core Subject 2		10	BBus Major Subject 8			
	Credit Points	40	Credit Points	40		
Autumn session						
MATH 1016	Mathematics for Engineers 1	10	ENGR 4041	Final Year Project 1 (UG Engineering)		
ENGR 1011	Engineering Physics	10	MECH 4004	Robotics		
ENGR 1018	Fundamentals of Mechanics	10	BBus Professional Subject 3			
ELEC 1006	Engineering Computing	10		Credit Points		
	Credit Points	40	Year 6			
Year 2						
Spring session						
ELEC 1003	Electrical Fundamentals	10	ENGR 4042	Final Year Project 2 (UG Engineering)		
ENGR 4039	Design for Advanced Manufacturing	10	MECH 4003	Mobile Robotics		
BBus Core Subject 3		10	BBus Professional Subject 4			
BBus Core Subject 4		10		Credit Points		
	Credit Points	40	Total Credit Points			
Autumn session						
PROC 2003	Materials Selection and Design	10	Bachelor of Engineering Science (3691)			
MATH 1019	Mathematics for Engineers 2	10	Qualification for this award requires the successful completion of 240 credit points, which include the subjects listed in the recommended sequence below.			
MECH 2003	Mechanics of Materials	10	* 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.			
MECH 2001	Kinematics and Kinetics of Machines	10	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.			
	Credit Points	40				
Year 3						
Spring session						
MECH 3004	Dynamics of Mechanical Systems	10				
ENGR 2001	Automated Manufacturing	10				
BBus Professional Subject 1		10				

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 1021	Mathematics for Engineers Preliminary	
MATH 1016	Mathematics for Engineers 1	
	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
	Credit Points	40
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
Digital Manufacturing and IIoT (not yet available)		10
	Credit Points	40
Spring session		
ENGR 3014	Engineering Science Project 2	10
Design for Advanced Manufacturing (not yet available)		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
Design for Advanced Manufacturing (not yet available)		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
Digital Manufacturing and IIoT (not yet available)		10
	Credit Points	40
Total Credit Points		
		240

Related Programs

Bachelor of Engineering (Honours)/Bachelor of Business (3728) (<https://hbook.westernsydney.edu.au/archives/2023-2024/programs/bachelor-engineering-honours-bachelor-business/>)

Bachelor of Engineering (Honours) (3740) (<https://hbook.westernsydney.edu.au/archives/2023-2024/programs/bachelor-engineering-honours/>)

Bachelor of Engineering Advanced (Honours) (3771) (<https://hbook.westernsydney.edu.au/archives/2023-2024/programs/bachelor-engineering-advanced-honours/>)

Bachelor of Engineering Science (3691) (<https://hbook.westernsydney.edu.au/archives/2023-2024/programs/bachelor-engineering-science/>)