

CONSTRUCTION ENGINEERING, TESTAMUR MAJOR (T132)

Western Sydney University Major Code: T132

Previous Code: MT3052.1

Available to students in other Western Sydney University programs?

No

Construction Engineering consists of core subjects in structural engineering, project management and construction technologies. Graduates will work in the fields of construction, structural design, and project management. Career opportunities include those in the private or public sector on projects covering highways, airports, and residential & commercial buildings. This major includes a mandatory 300 to 450 hour industrial placement as a completion requirement.

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)

Spring session		
MATH 1035	Mathematics for Engineers 2 (Advanced)	10
ENGR 1018	Fundamentals of Mechanics	10
PROC 1008	Introduction to Materials Engineering	10
Select one elective	10	
• Elective must be Level 2 or higher		

Credit Points	40
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Year 2		
Autumn session		
CIVL 1001	Surveying for Engineers	10
MECH 2003	Mechanics of Materials	10
BLDG 2002	Building Measurement	10
CIVL 2012	Soil Mechanics	10

Credit Points	40
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Spring session		
Autumn session		
ENGR 2016	Pavement Materials and Design	10
CIVL 2007	Introduction to Structural Engineering	10
BLDG 2001	Building Estimates and Tendering	10

Credit Points	40
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Year 3		
Autumn session		
CIVL 3014	Structural Analysis	10
BUSM 3077	Construction Project Management	10
CIVL 3002	Concrete Structures (UG)	10
One Alternate subject		10

Credit Points	40
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Year 3		
Spring session		
CIVL 3012	Steel Structures	10
CIVL 3017	Construction Scheduling	10
CIVL 3007	Engineering Geomechanics	10
One Alternate subject		10

Industrial Experience		
Autumn session		
ENGR 3017	Industrial Experience (Engineering)	0
Credit Points	40	

Year 4		
Autumn session		
ENGR 4037	Advanced Engineering Thesis 1: Preliminary Investigations	10
BLDG 4007	Modern Construction Projects	10
One Alternate subject		10

Year 4		
Select one elective		
• Elective subjects must be Level 2 or higher		

Year 4		
Spring session		
ENGR 4036	Advanced Engineering Thesis 2: Detailed Investigations	10
CIVL 4016	Envelope and Services	10
One Alternate subject		10

Year 4		
Select one elective		
• Elective subjects must be Level 2 or higher		

Recommended Sequence 2022 - 2023

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 course as noted below.

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

Bachelor of Engineering Advanced (Honours)

This Major will be offered at Engineering Innovation Hub – Hassall St, Parramatta City Campus.

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
ELEC 1006	Engineering Computing	10
ENGR 1047	Advanced Engineering Physics 1	10
ENGR 1024	Introduction to Engineering Practice	10
Credit Points		40

• Elective subjects must be Level 2 or higher	ENGR 1018	Fundamentals of Mechanics	10
Credit Points	PROC 1008	Introduction to Materials Engineering	10
Total Credit Points	ENGR 1024	Introduction to Engineering Practice	10
		Credit Points	40
Alternate Subjects		Autumn session	
Alternate subjects may be used to complete one of the minors listed below.	MATH 1035	Mathematics for Engineers 2 (Advanced)	10
	MECH 2003	Mechanics of Materials	10
	ENGR 1047	Advanced Engineering Physics 1	10
	ELEC 1006	Engineering Computing	10
		Credit Points	40
Subject	Title		
GEOM 3001	Advanced Building Measurement	10	
ENGR 3001	Advanced Engineering Topic 1	10	
ENGR 4001	Advanced Engineering Topic 2	10	
CIVL 4001	Applied Mechanics	10	
CIVL 3021	Bridge Engineering Design	10	
BLDG 3010	Building Cost Studies	10	
CIVL 4002	Composite Structures	10	
BLDG 3004	Construction Information Systems	10	
CIVL 3010	Highway Infrastructure	10	
CIVL 4008	Pile Foundations	10	
BLDG 3009	Quality and Value Management	10	
CIVL 4009	Timber Structures (UG)	10	
Optional Electives			
Subject	Title	Credit Points	
BLDG 4006	Modern Construction Enterprises	10	
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.			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.
ENGR 3022	Special Technical Project	10	
Minors		Credit Points	40
Construction Economics, Minor (https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/construction-economics-minor/)	CIVL 3012	Steel Structures	10
Structures, Minor (https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/structures-minor/)	CIVL 3017	Construction Scheduling	10
	CIVL 4016	Envelope and Services	10
	One Alternate subject		10
		Credit Points	40
Equivalent Subjects		Autumn session	
The subjects listed below count towards completion of this program for students who passed these subjects in 2021 or earlier.	CIVL 1001	Surveying for Engineers	10
MECH 4005 Advanced Engineering Thesis 1: Preliminary Investigations, replaced by ENGR 4037 Advanced Engineering Thesis 1: Preliminary Investigations	BUSM 3077	Construction Project Management	10
MECH 4006 Advanced Engineering Thesis 2: Detailed Investigations, replaced by ENGR 4036 Advanced Engineering Thesis 2: Detailed Investigations	CIVL 3002	Concrete Structures (UG)	10
The subjects listed below count towards completion of this program for students who passed these subjects in Autumn 2022 or earlier.	One Alternate subject		10
ENGR 1008 - Engineering Materials, replaced by PROC 1008 - Introduction to Materials Engineering		Industrial Experience	
	ENGR 3017	Industrial Experience (Engineering)	0
		Credit Points	40
Year 4			
Spring session		Year 4	
ENGR 4037	Advanced Engineering Thesis 1: Preliminary Investigations	10	
CIVL 3007	Engineering Geomechanics	10	
One Alternate subject			10
Select one elective			10
• Elective unit must be Level 2 or higher			
Course	Title	Credit Points	
Year 1			
Spring session		Autumn session	
MATH 1034	Mathematics for Engineers 1 (Advanced)	10	
ENGR 4036	Advanced Engineering Thesis 2: Detailed Investigations	10	

BLDG 4007	Modern Construction Projects	10	Qualification for this award requires the successful completion of 240 credit points, which include the subjects listed in the recommended sequence below.
One Alternate subject		10	
Select one elective		10	
• Elective unit must be Level 2 or higher			
Credit Points		40	
Total Credit Points		320	

Alternate Subjects

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

Subject	Title	Credit Points	
GEOM 3001	Advanced Building Measurement	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.
ENGR 3001	Advanced Engineering Topic 1	10	
ENGR 4001	Advanced Engineering Topic 2	10	
CIVL 4001	Applied Mechanics	10	
CIVL 3021	Bridge Engineering Design	10	Students who finish MATH 1021 Mathematics for Engineers Preliminary will then use this subject as an elective.
BLDG 3010	Building Cost Studies	10	
CIVL 4002	Composite Structures	10	
BLDG 3004	Construction Information Systems	10	
CIVL 3010	Highway Infrastructure	10	
CIVL 4008	Pile Foundations	10	
BLDG 3009	Quality and Value Management	10	
CIVL 4009	Timber Structures (UG)	10	

Optional Electives

Subject	Title	Credit Points	
BLDG 4006	Modern Construction Enterprises	10	
The following subject is an optional elective subject offered to students who are engaged in a School approved project. This subject can be taken during the third year of this program, however, permission is required to enrol in the subject.			
ENGR 3022	Special Technical Project	10	
Minors			
Construction Economics, Minor (https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/construction-economics-minor/)			
Structures, Minor (https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/structures-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 Science

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

* 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		
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
PROC 1008	Introduction to Materials Engineering	10
Select one elective		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		
CIVL 1001	Surveying for Engineers	10
MECH 2003	Mechanics of Materials	10
BLDG 2002	Building Measurement	10
ENGR 3029	Specialisation Workshop 1	10
Credit Points		40
Spring session		
ENGR 2016	Pavement Materials and Design	10
CIVL 2007	Introduction to Structural Engineering	10
BLDG 2001	Building Estimates and Tendering	10
ENGR 3030	Specialisation Workshop 2	10
Credit Points		40
Year 3		
Autumn session		
ENGR 3013	Engineering Science Project 1	10
CIVL 2012	Soil Mechanics	10

BUSM 3077	Construction Project Management	10	Autumn session	
BLDG 4007	Modern Construction Projects	10	CIVL 1001	Surveying for Engineers
	Credit Points	40	ELEC 1006	Engineering Computing
Spring session			BLDG 2002	Building Measurement
CIVL 3017	Construction Scheduling	10	ENGR 3030	Specialisation Workshop 2
ENGR 3014	Engineering Science Project 2	10		Credit Points
CIVL 2002	Environmental Engineering	10		40
Select one elective		10	Year 3	
• Elective must be Level 2 or higher			Spring session	
Industrial Experience			CIVL 3017	Construction Scheduling
ENGR 2033	Industrial Experience (Engineering Technologist)	0	CIVL 2002	Environmental Engineering
	Credit Points	40	ENGR 3013	Engineering Science Project 1
	Total Credit Points	240	Select one elective	10

Optional Elective

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

ENGR 3022 Special Technical Project

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:		
MATH 1021	Mathematics for Engineers Preliminary	10
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:		
MATH 1019	Mathematics for Engineers 2	
MATH 1016	Mathematics for Engineers 1	
MECH 2003	Mechanics of Materials	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

CIVL 2007	Introduction to Structural Engineering	10
BLDG 2001	Building Estimates and Tendering	10
ENGR 2016	Pavement Materials and Design	10
ENGR 3029	Specialisation Workshop 1	10

Credit Points	Credit Points
	40

Autumn session	Credit Points	40
CIVL 2012	Soil Mechanics	10
BUSM 3077	Construction Project Management	10
BLDG 4007	Modern Construction Projects	10
ENGR 3014	Engineering Science Project 2	10
Industrial Experience		
ENGR 2033	Industrial Experience (Engineering Technologist)	0
	Credit Points	40
	Total Credit Points	240

Optional Elective

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

ENGR 3022 Special Technical Project

Equivalent Subjects

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

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

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

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

Start-year intake

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

Spring session			Business Major Subject 8	10
MATH 1019	Mathematics for Engineers 2	10	Industrial Experience	
PROC 1008	Introduction to Materials Engineering	10	ENGR 3017	Industrial Experience (Engineering) 0
Business Core Subject 3		10		Credit Points 40
Business Core Subject 4		10		Total Credit Points 400
	Credit Points	40		
Year 2				
Autumn session				
ELEC 1006	Engineering Computing	10		
Business Professional Subject 1		10		ENGR 1008 - Engineering Materials, replaced by PROC 1008 -
Business Professional Subject 2		10		Introduction to Materials Engineering
Business Major Subject 1		10		
	Credit Points	40		
Spring session				
BLDG 1014	Non-Residential Building	10	Year 1	
ENGR 1018	Fundamentals of Mechanics	10	Spring session	
Business Major Subject 2		10	MATH 1016	Mathematics for Engineers 1 10
Business Major Subject 3		10	PROC 1008	Introduction to Materials Engineering 10
	Credit Points	40	Business Core Subject 1	10
Year 3			Business Core Subject 2	10
Autumn session				Credit Points 40
CIVL 1001	Surveying for Engineers	10	Autumn session	
MECH 2003	Mechanics of Materials	10	MATH 1019	Mathematics for Engineers 2 10
BLDG 2002	Building Measurement	10	ENGR 1011	Engineering Physics 10
CIVL 2012	Soil Mechanics	10	Business Core Subject 3	10
	Credit Points	40	Business Core Subject 4	10
Spring session				Credit Points 40
ENGR 2016	Pavement Materials and Design	10	Year 2	
CIVL 2007	Introduction to Structural Engineering	10	Spring session	
BLDG 2001	Building Estimates and Tendering	10	ENGR 1018	Fundamentals of Mechanics 10
CIVL 3017	Construction Scheduling	10	Business Professional Subject 1	10
	Credit Points	40	Business Professional Subject 2	10
Year 4			Business Major Subject 1	10
Autumn session				Credit Points 40
CIVL 3014	Structural Analysis	10	Autumn session	
CIVL 3002	Concrete Structures (UG)	10	MECH 2003	Mechanics of Materials 10
BUSM 3077	Construction Project Management	10	BLDG 2002	Building Measurement 10
Business Major Subject 4		10	Business Major Subject 2	10
	Credit Points	40	Business Major Subject 3	10
Spring session				Credit Points 40
CIVL 3012	Steel Structures	10	Year 3	
CIVL 3007	Engineering Geomechanics	10	Spring session	
Business Major Subject 5		10	ENGR 2016	Pavement Materials and Design 10
Business Major Subject 6		10	CIVL 2007	Introduction to Structural Engineering 10
	Credit Points	40	BLDG 2001	Building Estimates and Tendering 10
Year 5			CIVL 3017	Construction Scheduling 10
Autumn session				Credit Points 40
ENGR 4025	Final Year Project 1 (UG Engineering)	10	Autumn session	
BLDG 4007	Modern Construction Projects	10	CIVL 3014	Structural Analysis 10
Business Professional Subject 3		10	CIVL 3002	Concrete Structures (UG) 10
Business Major Subject 7		10	BUSM 3077	Construction Project Management 10
	Credit Points	40	CIVL 2012	Soil Mechanics 10
Spring session				Credit Points 40
CIVL 4016	Envelope and Services	10	Year 4	
ENGR 4026	Final Year Project 2 (UG Engineering)	10	Spring session	
Business Professional Subject 4		10	CIVL 3012	Steel Structures 10

CIVL 3007	Engineering Geomechanics	10	Select one elective	10
Business Major Subject 4		10		Credit Points
BLDG 1014	Non-Residential Building	10		40
	Credit Points	40		
Autumn session			Year 2	
CIVL 1001	Surveying for Engineers	10	Autumn session	
Business Major Subject 5		10	CIVL 1001	Surveying for Engineers
Business Major Subject 6		10	MECH 2003	Mechanics of Materials
ELEC 1006	Engineering Computing	10	BLDG 2002	Building Measurement
	Credit Points	40	CIVL 2012	Soil Mechanics
				Credit Points
Year 5			Spring session	
Spring session			ENGR 2016	Pavement Materials and Design
ENGR 4025	Final Year Project 1 (UG Engineering)	10	CIVL 2007	Introduction to Structural Engineering
CIVL 4016	Envelope and Services	10	BLDG 2001	Building Estimates and Tendering
Business Professional Subject 3		10	Select one elective	
Business Major Subject 7		10	*Elective subjects must be level 2 or higher (an exception applies for students completing Mathematics for Engineers Preliminary subject)	
	Credit Points	40		
Autumn session			Credit Points	40
ENGR 4026	Final Year Project 2 (UG Engineering)	10	Year 3	
BLDG 4007	Modern Construction Projects	10	Autumn session	
Business Professional Subject 4		10	CIVL 3014	Structural Analysis
Business Major Subject 8		10	BUSM 3077	Construction Project Management
Industrial Experience			CIVL 3002	Concrete Structures (UG)
ENGR 3017	Industrial Experience (Engineering)	0	One Alternate subject	
	Credit Points	40		Credit Points
			Spring session	
	Total Credit Points	400	CIVL 3012	Steel Structures
Equivalent Subjects			CIVL 3017	Construction Scheduling
The subjects listed below count towards completion of this program for students who passed these subjects in Autumn 2022 or earlier.			CIVL 3007	Engineering Geomechanics
ENGR 1008 - Engineering Materials, replaced by PROC 1008 - Introduction to Materials Engineering			One Alternate subject	
				Credit Points
				40
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.				
Start-year intake				
Course	Title	Credit Points		
Year 1			Credit Points	40
Autumn session			Year 4	
ELEC 1006	Engineering Computing	10	Autumn session	
ENGR 1011	Engineering Physics	10	BLDG 4007	Modern Construction Projects
ENGR 1024	Introduction to Engineering Practice	10	ENGR 4025	Final Year Project 1 (UG Engineering)
Select one of the following:		10	One Alternate subject	
MATH 1021	Mathematics for Engineers Preliminary		Select one elective	
MATH 1016	Mathematics for Engineers 1		*Elective subjects must be level 2 or higher (an exception applies for students completing Mathematics for Engineers Preliminary subject)	
	Credit Points	40		
Spring session			Spring session	
Select one of the following:		10	CIVL 4016	Envelope and Services
MATH 1019	Mathematics for Engineers 2		ENGR 4026	Final Year Project 2 (UG Engineering)
MATH 1016	Mathematics for Engineers 1		One Alternate subject	
ENGR 1018	Fundamentals of Mechanics	10	Select one elective	
PROC 1008	Introduction to Materials Engineering	10	*Elective subjects must be level 2 or higher (an exception applies for students completing Mathematics for Engineers Preliminary subject)	
	Credit Points	40	Industrial Experience	
			ENGR 3017	Industrial Experience (Engineering)
				Credit Points
				40
				Total Credit Points
				320
Alternate Subjects				
Alternate subjects may be used to complete one of the minors listed below.				

The subjects listed b

ENGR 1008 - Engineering Materials, replaced by PRGC 1008

Introduction to Materials Engineering

Mid-year intake

Course	Title	Credit Points	• Elective unit must be Level 2 or higher
Year 1			
Spring session			Credit Points
Select one of the following:		10	Autumn session
MATH 1021	Mathematics for Engineers Preliminary		ENGR 4026 Final Year Project 2 (UG Engineering) 10
MATH 1016	Mathematics for Engineers 1		BLDG 4007 Modern Construction Projects 10
ENGR 1018	Fundamentals of Mechanics	10	Select one elective 10
PROC 1008	Introduction to Materials Engineering	10	One Alternate subject 10
ENGR 1024	Introduction to Engineering Practice	10	• Elective unit must be Level 2 or higher
	Credit Points	40	
Autumn session			Industrial Experience
Select one of the following:		10	ENGR 3017 Industrial Experience (Engineering) 0
MATH 1019	Mathematics for Engineers 2		Credit Points
MATH 1016	Mathematics for Engineers 1		Total Credit Points
MECH 2003	Mechanics of Materials	10	320
ENGR 1011	Engineering Physics	10	
ELEC 1006	Engineering Computing	10	
	Credit Points	40	
Year 2			Alternate Subjects
Spring session			Alternate subjects may be used to complete one of the minors listed below.
CIVL 2007	Introduction to Structural Engineering	10	Subject Title Credit Points
BLDG 2001	Building Estimates and Tendering	10	GEOM 3001 Advanced Building Measurement 10
ENGR 2016	Pavement Materials and Design	10	ENGR 3001 Advanced Engineering Topic 1 10
Select one elective		10	ENGR 4001 Advanced Engineering Topic 2 10
• Elective unit must be Level 2 or higher			CIVL 4001 Applied Mechanics 10
	Credit Points	40	CIVL 3021 Bridge Engineering Design 10
Autumn session			BLDG 3010 Building Cost Studies 10
CIVL 3014	Structural Analysis	10	CIVL 4002 Composite Structures 10
BLDG 2002	Building Measurement	10	BLDG 3004 Construction Information Systems 10
CIVL 2012	Soil Mechanics	10	CIVL 3010 Highway Infrastructure 10
Select one elective		10	CIVL 4008 Pile Foundations 10
	Credit Points	40	BLDG 3009 Quality and Value Management 10
			CIVL 4009 Timber Structures (UG) 10

Equivalent Subjects

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

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

Major Sequence 2024

This sequence applies to students who commenced in 2024 or later. If you commenced prior to 2024 please refer to the Sequence 2022 - 2023 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 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	Credit Points	Credit Points
Year 1				
Autumn session				
MATH 1034	Mathematics for Engineers 1 (Advanced)	10		
ELEC 1006	Engineering Computing	10		
ENGR 1047	Advanced Engineering Physics 1	10		
ENGR 1024	Introduction to Engineering Practice	10		
	Credit Points	40		
Spring session				
MATH 1035	Mathematics for Engineers 2 (Advanced)	10		
ENGR 1018	Fundamentals of Mechanics	10		
ELEC 1003	Electrical Fundamentals	10		
ENGR 2023	Advanced Engineering Physics 2	10		
	Credit Points	40		
			Total Credit Points	320

Subject	Title	Credit Points
BLDG 4006	Modern Construction Enterprises	10

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

ENGR 3022 Special Technical Project 10

Subject	Title	Credit Points
BLDG 4006	Modern Construction Enterprises	10
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.

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		
CIVL 3014	Structural Analysis	10
BUSM 3077	Construction Project Management	10
CIVL 3002	Concrete Structures (UG)	10
Select one elective** or Minor subject		10
	Credit Points	40
Spring session		
CIVL 3012	Steel Structures	10
CIVL 3017	Construction Scheduling	10
CIVL 3007	Engineering Geomechanics	10
ENGR 2016	Pavement Materials and Design	10
Industrial Experience		
ENGR 3017	Industrial Experience (Engineering)	0
	Credit Points	40

	Credit Points	40
Year 4		
Autumn session		
ENGR 4043	Advanced Engineering Thesis 1: Preliminary Investigations	20
BLDG 4007	Modern Construction Projects	10
Select one elective** or Minor subject		10
	Credit Points	40
Spring session		
ENGR 4044	Advanced Engineering Thesis 2: Detailed Investigations	20
CIVL 4016	Envelope and Services	10
Select one elective** or Minor subject		10
	Credit Points	40
	Total Credit Points	320

Optional Electives

Subject	Title	Credit Points
BLDG 4006	Modern Construction Enterprises	10

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

ENGR 3022 Special Technical Project 10

Equivalent Subjects

The subjects listed below count towards completion of this program for students who passed these subjects in 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 2023	Advanced Engineering Physics 2	10
	Credit Points	40
Autumn session		
MATH 1035	Mathematics for Engineers 2 (Advanced)	10
MECH 2003	Mechanics of Materials	10
ENGR 1047	Advanced Engineering Physics 1	10
ELEC 1006	Engineering Computing	10
	Credit Points	40
Year 2		
Spring session		
PROC 1008	Introduction to Materials Engineering	10
CIVL 2007	Introduction to Structural Engineering	10
BLDG 2001	Building Estimates and Tendering	10
Select one elective** or Minor subject		10
	Credit Points	40
Autumn session		
CIVL 3014	Structural Analysis	10
BLDG 2002	Building Measurement	10
CIVL 2012	Soil Mechanics	10
ENGR 1024	Introduction to Engineering Practice	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		
CIVL 3012	Steel Structures	10
CIVL 3017	Construction Scheduling	10
CIVL 4016	Envelope and Services	10
ENGR 2016	Pavement Materials and Design	10
	Credit Points	40
Autumn session		
CIVL 1001	Surveying for Engineers	10
BUSM 3077	Construction Project Management	10
CIVL 3002	Concrete Structures (UG)	10
Select one elective** or Minor subject		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
CIVL 3007	Engineering Geomechanics	10

Select one elective** or Minor subject	Credit Points	10
Autumn session		
ENGR 4044	Advanced Engineering Thesis 2: Detailed Investigations	20
BLDG 4007	Modern Construction Projects	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 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 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 (<https://hbook.westernsydney.edu.au/archives/2023-2024/search/?P=MATH%201021>) 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 (<https://hbook.westernsydney.edu.au/archives/2023-2024/search/?P=MATH%201021>) Mathematics for Engineers Preliminary or be transferred by the School to MATH 1016 (<https://hbook.westernsydney.edu.au/archives/2023-2024/search/?P=MATH%201016>) Mathematics for Engineers 1.

Students remaining in MATH 1021 (<https://hbook.westernsydney.edu.au/archives/2023-2024/search/?P=MATH%201021>) Mathematics for Engineers Preliminary will be required to complete MATH 1016 (<https://hbook.westernsydney.edu.au/archives/2023-2024/search/?P=MATH%201016>) Mathematics for Engineers 1 during second semester and will be encouraged to complete MATH 1019 (<https://hbook.westernsydney.edu.au/archives/2023-2024/search/?P=MATH%201019>) Mathematics for Engineers 2 during the Summer session.

Students who finish MATH 1021 (<https://hbook.westernsydney.edu.au/archives/2023-2024/search/?P=MATH%201021>) Mathematics for Engineers Preliminary will then use this subject as an elective.

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
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		
CIVL 1001	Surveying for Engineers	10
MECH 2003	Mechanics of Materials	10
BLDG 2002	Building Measurement	10
ENGR 3029	Specialisation Workshop 1	10
Credit Points		40
Spring session		
ENGR 2016	Pavement Materials and Design	10
CIVL 2007	Introduction to Structural Engineering	10
BLDG 2001	Building Estimates and Tendering	10
ENGR 3030	Specialisation Workshop 2	10
Credit Points		40
Year 3		
Autumn session		
ENGR 3013	Engineering Science Project 1	10
CIVL 2012	Soil Mechanics	10
BUSM 3077	Construction Project Management	10
Select one elective		10
Credit Points		40
Spring session		
CIVL 3017	Construction Scheduling	10
ENGR 3014	Engineering Science Project 2	10
CIVL 2002	Environmental Engineering	10
Select one elective		10
<ul style="list-style-type: none"> Elective must be Level 2 or higher (an exception applies for students completing Mathematics for Engineers Preliminary subject) 		
Industrial Experience		
ENGR 2033	Industrial Experience (Engineering Technologist)	0
Credit Points		40
Total Credit Points		240

Optional Elective

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

ENGR 3022 Special Technical Project

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:		
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
ELEC 1003	Electrical Fundamentals	10
Credit Points		40
Autumn session		
Select one of the following:		
MATH 1019	Mathematics for Engineers 2	
MATH 1016	Mathematics for Engineers 1	
MECH 2003	Mechanics of Materials	10
ENGR 1011	Engineering Physics	10
ENGR 1024	Introduction to Engineering Practice	10
Credit Points		40
Year 2		
Spring session		
CIVL 2007	Introduction to Structural Engineering	10
BLDG 2001	Building Estimates and Tendering	10
ENGR 2016	Pavement Materials and Design	10
ENGR 3029	Specialisation Workshop 1	10
Credit Points		40
Autumn session		
CIVL 1001	Surveying for Engineers	10
ELEC 1006	Engineering Computing	10
BLDG 2002	Building Measurement	10
ENGR 3030	Specialisation Workshop 2	10
Credit Points		40
Year 3		
Spring session		
CIVL 3017	Construction Scheduling	10
CIVL 2002	Environmental Engineering	10
ENGR 3013	Engineering Science Project 1	10
Select one elective*		10
<ul style="list-style-type: none"> Elective subjects must be level 2 or higher (an exception applies for students completing Mathematics for Engineers Preliminary subject) 		
Industrial Experience		
ENGR 2033	Industrial Experience (Engineering Technologist)	0
Credit Points		40
Total Credit Points		240
Credit Points		40

*Elective subjects must be level 2 or higher (an exception applies for students completing Mathematics for Engineers Preliminary subject)

Autumn session		Business Major Subject 2	10
CIVL 2012	Soil Mechanics	Credit Points	40
BUSM 3077	Construction Project Management		
Select one elective			
ENGR 3014	Engineering Science Project 2		
Industrial Experience			
ENGR 2033	Industrial Experience (Engineering Technologist)		
Credit Points	40		
Total Credit Points	240		

Optional Elective

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

ENGR 3022 Special Technical Project

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

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			
MATH 1016	Mathematics for Engineers 1	10	
ENGR 1011	Engineering Physics	10	
ENGR 1024	Introduction to Engineering Practice	10	
Business Core Subject 1		10	
Credit Points		40	
Spring session			
MATH 1019	Mathematics for Engineers 2	10	
PROC 1008	Introduction to Materials Engineering	10	
Business Core Subject 3		10	
Business Core Subject 4		10	
Credit Points		40	
Year 2			
Autumn session			
ELEC 1006	Engineering Computing	10	
Business Core Subject 4		10	
Business Professional Subject 1		10	
Business Professional Subject 2		10	
Credit Points		40	
Spring session			
ELEC 1003	Electrical Fundamentals	10	
ENGR 1018	Fundamentals of Mechanics	10	
Business Major Subject 1		10	
Credit Points		40	
Total Credit Points			440
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	ENGR 3017	Industrial Experience (Engineering)	0
			Credit Points		40
Year 1			Year 5		
Spring session			Spring session		
MATH 1016	Mathematics for Engineers 1	10	ENGR 4041	Final Year Project 1 (UG Engineering)	20
PROC 1008	Introduction to Materials Engineering	10	CIVL 4016	Envelope and Services	10
ENGR 1024	Introduction to Engineering Practice	10	Business Major Subject 6		10
Business Core Subject 1		10	Credit Points		40
Credit Points		40	ENGR 4042		Final Year Project 2 (UG Engineering) 20
Autumn session			BLDG 4008		Digital Construction 10
MATH 1019	Mathematics for Engineers 2	10	BLDG 4007	Modern Construction Projects	10
ENGR 1011	Engineering Physics	10	Credit Points		40
Business Core Subject 2		10	Year 6		
Business Core Subject 3		10	Spring session		
Credit Points		40	Business Major Subject 7		10
Year 2			Business Professional Subject 3		10
Spring session			Business Professional Subject 4		10
ELEC 1003	Electrical Fundamentals	10	Business Major Subject 8		10
ENGR 1018	Fundamentals of Mechanics	10	Credit Points		40
Business Core Subject 4		10	Total Credit Points		440
Business Major Subject 1		10	Equivalent Subjects		
Credit Points		40	The subjects listed below count towards completion of this program for students who passed these subjects in Autumn 2022 or earlier.		
Autumn session			ENGR 1008 - Engineering Materials, replaced by PROC 1008 Introduction to Materials Engineering		
MECH 2003	Mechanics of Materials	10			
BLDG 2002	Building Measurement	10			
Business Major Subject 2		10			
Business Professional Subject 1		10			
Credit Points		40			
Year 3					
Spring session					
ENGR 2016	Pavement Materials and Design	10	Qualification for this award requires the successful completion of 320 credit points, which include the subjects listed in the recommended sequence below.		
CIVL 2007	Introduction to Structural Engineering	10			
BLDG 2001	Building Estimates and Tendering	10	** 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)		
Business Major Subject 3		10			
Credit Points		40			
Autumn session					
CIVL 3014	Structural Analysis	10			
CIVL 3002	Concrete Structures (UG)	10			
BUSM 3077	Construction Project Management	10			
CIVL 2012	Soil Mechanics	10			
Credit Points		40			
Year 4					
Spring session					
CIVL 3012	Steel Structures	10			
CIVL 3007	Engineering Geomechanics	10	Select one of the following:		
CIVL 3017	Construction Scheduling	10	MATH 1021 Mathematics for Engineers Preliminary		
Business Major Subject 4		10	MATH 1016 Mathematics for Engineers 1		
Credit Points		40			
Autumn session			Credit Points		40
ELEC 1006	Engineering Computing	10			
CIVL 1001	Surveying for Engineers	10			
Business Major Subject 5		10			
Business Professional Subject 2		10	ENGR 1018 Fundamentals of Mechanics		
Industrial Experience			PROC 1008 Introduction to Materials Engineering		

ELEC 1003	Electrical Fundamentals	10	ENGR 1024	Introduction to Engineering Practice	10		
	Credit Points	40		Credit Points	40		
Year 2							
Autumn session							
CIVL 1001	Surveying for Engineers	10	MATH 1019	Mathematics for Engineers 2	10		
MECH 2003	Mechanics of Materials	10	MATH 1016	Mathematics for Engineers 1			
BLDG 2002	Building Measurement	10	MECH 2003	Mechanics of Materials	10		
CIVL 2012	Soil Mechanics	10	ENGR 1011	Engineering Physics	10		
	Credit Points	40	ELEC 1006	Engineering Computing	10		
Spring session							
ENGR 2016	Pavement Materials and Design	10		Credit Points	40		
CIVL 2007	Introduction to Structural Engineering	10	Year 2				
BLDG 2001	Building Estimates and Tendering	10	Spring session				
Select one elective** or Major subject		10	CIVL 2007	Introduction to Structural Engineering	10		
	Credit Points	40	BLDG 2001	Building Estimates and Tendering	10		
Year 3							
Autumn session							
CIVL 3014	Structural Analysis	10	CIVL 3014	Structural Analysis	10		
BUSM 3077	Construction Project Management	10	BLDG 2002	Building Measurement	10		
CIVL 3002	Concrete Structures (UG)	10	CIVL 2012	Soil Mechanics	10		
One elective** or Major subject		10	CIVL 1001	Surveying for Engineers	10		
	Credit Points	40		Credit Points	40		
Spring session							
CIVL 3012	Steel Structures	10	Year 3				
CIVL 3017	Construction Scheduling	10	Spring session				
CIVL 3007	Engineering Geomechanics	10	CIVL 3012	Steel Structures	10		
One elective** or Major subject		10	CIVL 3017	Construction Scheduling	10		
	Credit Points	40	CIVL 3007	Engineering Geomechanics	10		
Year 4							
Autumn session							
BLDG 4007	Modern Construction Projects	10	BUSM 3077	Construction Project Management	10		
ENGR 4041	Final Year Project 1 (UG Engineering)	20	CIVL 3002	Concrete Structures (UG)	10		
BLDG 4008	Digital Construction	10	Select one elective** or Major subject		10		
	Credit Points	40	Select one elective** or Major subject		10		
Spring session							
CIVL 4016	Envelope and Services	10	Industrial Experience				
ENGR 4042	Final Year Project 2 (UG Engineering)	20	ENGR 3017	Industrial Experience (Engineering)	0		
Select one elective** or Major subject		10		Credit Points	40		
	Credit Points	40	Year 4				
	Total Credit Points	320	Spring session				
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:							
MATH 1021	Mathematics for Engineers Preliminary	10	Equivalent Subjects				
MATH 1016	Mathematics for Engineers 1		The subjects listed below count towards completion of this program for students who passed these subjects in Autumn 2022 or earlier.				
ENGR 1018	Fundamentals of Mechanics	10					
PROC 1008	Introduction to Materials Engineering	10					

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

Related Programs

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