

The Degree of Master of Civil Engineering (MCivilEng – 120 points)

These regulations must be read in conjunction with the General Regulations for the University.

1. Version

- (a) These Regulations came into force on 1 January 2021.
- (b) This degree was first offered in 2019.

2. Variations

In exceptional circumstances the Amo Pūkaha | College of Engineering Dean (Academic) may approve a personal programme of study which does not conform to these Regulations.

3. The structure of the qualification

To qualify for the Master of Civil Engineering a student must:

- (a) be credited with a minimum of 120 points towards the qualification; and
- (b) be credited with an approved workshop covering topics relevant to indigenous consultation and engagement; and
- (c) either completed with an endorsement in a single subject with:
 - i. a minimum of 15 points at 600-level from Part I in the subject in Schedule S to these Regulations; and
 - ii. a minimum of 45 points at 600-level from Part II in the subject in Schedule S to these Regulations; and
 - iii. The remaining courses from the courses listed in Schedule S to these Regulations; or
- (d) completed unendorsed with courses listed in Schedule E to these Regulations.

4. Admission to the qualification

To be admitted to the Master of Civil Engineering a student must have:

- (a) qualified for the Degree of Bachelor of Engineering with First or Second Class Honours in an appropriate subject; or
- (b) qualified for the Postgraduate Certificate in Civil Engineering with a GPA of at least 5.0; or
- (c) qualified for the Degree of Bachelor of Science with First or Second Class Honours in an appropriate subject; or
- (d) been admitted with Academic Equivalent Standing for the Degree of Master of Civil Engineering; and
- (e) been approved as a candidate for the Degree by the Amo Pūkaha | College of Engineering Dean (Academic).

5. Subjects

The qualification may be awarded with an endorsement in the following subjects: Construction Management, Earthquake Engineering, Renewable Engineering, Transportation Engineering.

6. Time limits

This qualification adheres to the General Regulations for the University with a time limit of 48 months.

7. Transfers of credit, substitutions and cross-credits

This qualification adheres to the Credit Recognition and Transfer Regulations, with no additional stipulations.

8. Progression

- (a) This qualification adheres to the General Regulations for the University with the following stipulation:
 - i. A student who fails up to 30 points for the qualification may, with the permission of the Amo Pūkaha | College of Engineering Dean (Academic), repeat that course or courses, or substitute another course or courses of equal weight.
 - ii. A student who fails more than 30 points will be withdrawn from the qualification.
- (b) Before seeking progression to an endorsement in the qualification a student must either:
 - i. have completed 60 points of the qualification, including a minimum of 30 points of courses in the subject specified in Schedule S to these Regulations, with a GPA of 6.0 or more; or

- ii. have completed the Postgraduate Certificate in Civil Engineering, including courses in the subject specified in Schedule S to these Regulations, with a GPA of 6.0 or more; or
- iii. been otherwise approved by the Amo Pūkaha | College of Engineering Dean (Academic).

9. Honours, Distinction and Merit

This qualification adheres to the General Regulations for the University and may be awarded with Distinction and Merit.

10. Exit and Upgrade Pathways to other Qualifications

A student for the qualification who has satisfied all requirements for the Postgraduate Certificate in Civil Engineering may apply to withdraw from the degree and be awarded the Postgraduate Certificate in Civil Engineering.

Schedule S: Subject Courses for the Degree of Master of Civil Engineering: Endorsements

For full course information, go to www.canterbury.ac.nz/courses

Construction Management

Part I:

Course Code	Course Title	Pts	2021	Location	P/C/R/RP/EQ
ENCI 601	Risk Management	15	S1	Campus	P: Subject to approval of the Director of Studies
ENCM 620	Construction Procurement and Contract Administration	15	S1	Campus	P: Subject to approval of Programme Director

Part II:

Course Code	Course Title	Pts	2021	Location	P/C/R/RP/EQ
ENCM 610	Construction Management	15	NO		P: Subject to approval of Programme Director
ENCM 630	Project Management, Planning and Control Techniques	15	S1	Campus	P: Subject to approval of Programme Director
ENCM 650	Cost Engineering	15	S2	Campus	RP: BE (Hons) or equivalent
ENCM 676	Construction Equipment and Heavy Construction Methods	15	S2	Campus	
ENCM 678	Special Topic	15	NO		P: Subject to approval of the Director of Studies
ENCM 682	Research Project	30	A	Campus	P: Subject to approval of Programme Director

Digital Civil Engineering

Part I:

Course Code	Course Title	Pts	2021	Location	P/C/R/RP/EQ
ENCI 630	Special Topic: Predictive Analytics for Civil and Natural Systems	15	NO		P: Subject to approval of the Head of Department.

Part II:

Course Code	Course Title	Pts	2021	Location	P/C/R/RP/EQ
ENAE 606	Building Modelling and Integrated Design	15	S1	Campus	P: Subject to approval of the Head of Department
			S2	Campus	
ENCN 623	Energy Systems Modelling and Analysis	15	S2	Campus	P: ENNR 423 or subject to approval of the Head of Department
ENCN 625	Wind Resource Modelling	15	S2	Campus	

ENTR 615	Advanced traffic flow theory and simulation	15	S2	Campus	P: ENCN 412: traffic engineering or equivalent
ENTR 619	Special Topic: Quantitative Techniques for Transport Engineering and Planning	15	NO		P: Subject to approval of the Programme Director

Earthquake Engineering

Part I:

Course Code	Course Title	Pts	2021	Location	P/C/R/PP/EQ
ENCI 438	Introduction to Structural Earthquake Engineering	15	S1	Campus	P: EMTH 210, ENCI 199, ENCN 201, ENCN 213, ENCN 221, ENCN 231, ENCN 242, ENCN 253, ENCN 261, ENCN 281, ENCI 335, ENCI 336 R: ENCI 429
ENEQ 610	Seismic Hazard and Risk Analysis	15	X	Campus	P: Subject to approval of the Head of Department or the Programme Director. R: ENCI 617
ENEQ 624	Nonlinear Structural Analysis and Dynamics	15	X	Campus	P: Subject to approval of the Head of Department or Programme Co-ordinator.

Part II:

Course Code	Course Title	Pts	2021	Location	P/C/R/PP/EQ
ENEQ 620	Advanced Geotechnical Earthquake Engineering	15	X	Campus	P: Subject to approval of the Head of Department or the Programme Director. R: ENCI 620
ENEQ 633	Special Topic: Advanced Timber Structures	15	X	Campus	P: Subject to approval of the Head of Department or the Programme Director.
ENEQ 640	Displacement-based Design of Low Damage Structures	15	X	Campus	P: Subject to approval of the Head of Department or Programme Director R: ENCI 615
ENEQ 642	Seismic Assessment and Retrofit Strategies for Existing Reinforced Concrete Buildings	15	NO		P: Subject to approval of Head of Department. R: ENEQ 692 RP: Post-graduate admission and approval of the departmental Director of Post-graduate Studies. Undergraduate background in earthquake engineering is expected.
ENEQ 650	Advanced Steel and Composite Structures	15	X	Campus	P: ENCI 423 and ENCI 429 or approval of Head of Department or Programme Director. R: ENCI 611
ENEQ 670	Seismic Bridge Engineering	15	NO		P: Subject to approval of the Head of Department or Programme Director
ENEQ 680	Seismic Performance and Loss Estimation	15	NO		P: Subject to approval of the Head of Department or Programme Director

Geotechnical Engineering

Part I:

Course Code	Course Title	Pts	2021	Location	P/C/R/RP/EQ
ENCN 452	Advanced Geotechnical Engineering	15	S1	Campus	P: EMTH 210, ENCI 199, ENCN 201, ENCN 213, ENCN 221, ENCN 231, ENCN 242, ENCN 253, ENCN 261, ENCN 281, ENCN 353 R: ENCI 452
ENCN 454	Introduction to Geotechnical Earthquake Engineering	15	S1	Campus	P: EMTH 210, ENCI 199, ENCN 201, ENCN 213, ENCN 221, ENCN 231, ENCN 242, ENCN 253, ENCN 261, ENCN 281, ENCN 353 R: ENCI 620
ENEQ 610	Seismic Hazard and Risk Analysis	15	X	Campus	P: Subject to approval of the Head of Department or the Programme Director. R: ENCI 617
ENGE 412	Rock Mechanics and Rock Engineering	15	S1	Campus	P: (1) ENCN 353 or (2) MATH 101 or MATH 102 or MATH 103 and (3) approval from the Head of Department of Geological Sciences R: ENGE 485
GEOL 479	Active Tectonics and Geomorphology	15	S1	Campus	P: Subject to approval of the Head of Department.

Part II:

Course Code	Course Title	Pts	2021	Location	P/C/R/RP/EQ
ENEQ 620	Advanced Geotechnical Earthquake Engineering	15	X	Campus	P: Subject to approval of the Head of Department or the Programme Director. R: ENCI 620
ENEQ 682	Special topic: Ground improvement techniques	15	X	Campus	P: Subject to approval of the Head of Department or the Programme Director.

Renewable Energy

Part I:

Course Code	Course Title	Pts	2021	Location	P/C/R/RP/EQ
ENCI 601	Risk Management	15	S1	Campus	P: Subject to approval of the Director of Studies
ENGR 621	Energy, Technology and Society	15	S1	Campus	P: Subject to the approval of the Head of Department.
ENNR 423	Sustainable Energy Systems	15	S1	Campus	P: EMTH 210, ENCI 199, ENCN 201, ENCN 213, ENCN 221, ENCN 231, ENCN 242, ENCN 253, ENCN 261, ENCN 281, ENCN 375

Part II:

Course Code	Course Title	Pts	2021	Location	P/C/R/RP/EQ
ENCN 623	Energy Systems Modelling and Analysis	15	S2	Campus	P: ENNR 423 or subject to approval of the Head of Department
ENCN 625	Wind Resource Modelling	15	S2	Campus	
ENEL 667	Renewable Electricity System Design	15	S2	Campus	R: ENEL 663, ENEL 664

Smart Infrastructure (from 2022)

Structural Engineering

Part I:

Course Code	Course Title	Pts	2021	Location	P/C/R/RR/EQ
ENCI 436	Behaviour and Design of Structures 2	30	S1	Campus	P: EMTH 210, ENCI 199, ENCN 201, ENCN 213, ENCN 221, ENCN 231, ENCN 242, ENCN 253, ENCN 261, ENCN 281, ENCI 335, ENCI 336 C: ENCI 438 R: ENCI 425, ENCI 426, ENCI 427
ENEQ 623	Finite Element Analysis of Structures	15	X	Campus	P: Subject to approval of the Head of Department or the Programme Director
ENEQ 624	Nonlinear Structural Analysis and Dynamics	15	X	Campus	P: Subject to approval of the Head of Department or Programme Co-ordinator.
ENEQ 641	Nonlinear Concrete Mechanics and Modelling Techniques	15	NO		P: Subject to approval of the Head of Department or Programme Director

Part II:

Course Code	Course Title	Pts	2021	Location	P/C/R/RR/EQ
ENAE 603	Structural Design Practice	15	X2	Campus	P: Subject to approval of the Head of Department
ENAE 604	Structural Assessment and Retrofit	15	X2	Campus	P: Subject to approval of the Head of Department
ENCI 621	Concrete Materials and Practice	15	NO		P: Subject to approval of Programme Director.
ENCI 670	Special Topic	15	NO		P: Subject to approval of the Head of Department.
ENEQ 633	Special Topic: Advanced Timber Structures	15	X	Campus	P: Subject to approval of the Head of Department or the Programme Director.
ENEQ 650	Advanced Steel and Composite Structures	15	X	Campus	P: ENCI 423 and ENCI 429 or approval of Head of Department or Programme Director. R: ENCI 611

Structural Fire Engineering

Part I:

Course Code	Course Title	Pts	2021	Location	P/C/R/RR/EQ
ENCI 436	Behaviour and Design of Structures 2	30	S1	Campus	P: EMTH 210, ENCI 199, ENCN 201, ENCN 213, ENCN 221, ENCN 231, ENCN 242, ENCN 253, ENCN 261, ENCN 281, ENCI 335, ENCI 336 C: ENCI 438 R: ENCI 425, ENCI 426, ENCI 427
ENEQ 623	Finite Element Analysis of Structures	15	X	Campus	P: Subject to approval of the Head of Department or the Programme Director
ENFE 601	Structural Fire Engineering	15	S1	Campus	P: ENGR 403 or subject to approval of the Head of Department R: ENCI 661
ENFE 602	Fire Dynamics	15	S1	Campus	P: ENGR 403 EQ: ENCI 663
ENGR 403	Fire Engineering	15	SU1	Campus	P: Subject to approval of the Director of Studies
			S1	Campus	

Part II:

Course Code	Course Title	Pts	2021	Location	P/C/R/ RP/EQ
ENEQ 624	Nonlinear Structural Analysis and Dynamics	15	X	Campus	P: Subject to approval of the Head of Department or Programme Co-ordinator.
ENEQ 641	Nonlinear Concrete Mechanics and Modelling Techniques	15	NO		P: Subject to approval of the Head of Department or Programme Director
ENFE 610	Advanced Fire Dynamics	15	X	Campus	P: ENGR 403
ENFE 618	Advanced Structural Fire Engineering	15	S2	Campus	P: ENFE 601, ENFE 602

*Transportation Engineering***Part I:**

Course Code	Course Title	Pts	2021	Location	P/C/R/ RP/EQ
ENTR 401	Fundamentals of Transport Engineering	15	NO		P: Subject to approval of the Programme Director R: ENCI 412
ENTR 603	Advanced Pavement Design	15	NO		P: Subject to approval of the Programme Director.
ENTR 604	Road Asset Management	15	NO		P: Subject to approval of the Programme Director.
ENTR 617	Traffic Network Modelling and Optimization	15	NO		P: ENCN 412: traffic engineering or equivalent
ENTR 619	Special Topic: Quantitative Techniques for Transport Engineering and Planning	15	NO		P: Subject to approval of the Programme Director

Part II:

Course Code	Course Title	Pts	2021	Location	P/C/R/ RP/EQ
ENTR 602	Accident Reduction and Prevention	15	S1	Campus	P: Subject to approval of the Programme Director
ENTR 608	Special Topic: Traffic Management and Monitoring	15	S2	Campus	P: Subject to approval of the Programme Director.
ENTR 612	Transport Policy and System Management	15	NO		P: Subject to approval of the Programme Director R: ENTR 601
ENTR 613	Highway Geometric Design	15	NO		P: Subject to approval of the Programme Director
ENTR 614	Planning and Design of Sustainable Transport	15	NO		P: Subject to approval of the Programme Director
ENTR 615	Advanced traffic flow theory and simulation	15	S2	Campus	P: ENCN 412: traffic engineering or equivalent
ENTR 616	Transport Planning and Modelling	15	S1	Campus	P: Subject to approval of the Programme Director R: ENTR 605
ENTR 618	Transport and Freight Logistics	15	NO		P: Subject to approval of the Programme Director.

*Water Engineering***Part I:**

Course Code	Course Title	Pts	2021	Location	P/C/R/ RP/EQ
ENCI 634	Engineering Chemistry for Water Systems	15	S1	Campus	P: Subject to approval of the Programme Director
ENCI 648	Special Topic: Water Demand and Supply	15	S1	Campus	P: Subject to approval of the Head of Department.

Part II:

Course Code	Course Title	Pts	2021	Location	P/C/R/RP/EQ
ENCI 638	Environmental Fluid Dynamics	15	NO		P: Subject to approval of the Head of Department.
ENCI 646	Flood Analysis, Modelling and Management	15	S1	Campus	P: Subject to approval of the Head of Department or the Programme Director. The expected level of previous experience is detailed in the course outline.
ENCI 677	Advanced Wastewater Treatment	15	X	Campus	P: ENCN 281 and ENCN 481 or equivalent

ENCI645 Advanced Wastewater Treatment

Schedule E: Elective Courses for the Degree of Master of Civil Engineering: General Courses

Course Code	Course Title	Pts	2021	Location	P/C/R/RP/EQ
ENAE 601	Whole Building Behaviour and Performance	15	S1	Campus	P: Subject to approval of the Head of Department
			X2	Campus	
ENAE 602	Collaborative Building Design Studio	15	S1	Campus	P: Subject to approval of the Head of Department.
			X2	Campus	
ENAE 603	Structural Design Practice	15	X2	Campus	P: Subject to approval of the Head of Department
ENAE 604	Structural Assessment and Retrofit	15	X2	Campus	P: Subject to approval of the Head of Department
ENAE 605	Sustainable Building Design Practice	15	S1	Campus	P: Subject to approval of the Head of Department
			S2	Campus	
ENAE 606	Building Modelling and Integrated Design	15	S1	Campus	P: Subject to approval of the Head of Department
			S2	Campus	
ENCI 601	Risk Management	15	S1	Campus	P: Subject to approval of the Director of Studies
ENCI 630	Special Topic: Predictive Analytics for Civil and Natural Systems	15	NO		P: Subject to approval of the Head of Department.
ENCI 634	Engineering Chemistry for Water Systems	15	S1	Campus	P: Subject to approval of the Programme Director
ENCM 620	Construction Procurement and Contract Administration	15	S1	Campus	P: Subject to approval of Programme Director
ENCN 454	Introduction to Geotechnical Earthquake Engineering	15	S1	Campus	P: EMTH 210, ENCI 199, ENCN 201, ENCN 213, ENCN 221, ENCN 231, ENCN 242, ENCN 253, ENCN 261, ENCN 281, ENCN 353 R: ENCI 620
ENCN 665	Time series analysis and signal processing in civil engineering	15	NO		P: EMTH 210, ENCN 304 and ENCN 305 or equivalent
ENEQ 610	Seismic Hazard and Risk Analysis	15	X	Campus	P: Subject to approval of the Head of Department or the Programme Director. R: ENCI 617
ENEQ 623	Finite Element Analysis of Structures	15	X	Campus	P: Subject to approval of the Head of Department or the Programme Director
ENEQ 624	Nonlinear Structural Analysis and Dynamics	15	X	Campus	P: Subject to approval of the Head of Department or Programme Co-ordinator.
ENEQ 641	Nonlinear Concrete Mechanics and Modelling Techniques	15	NO		P: Subject to approval of the Head of Department or Programme Director
ENFE 601	Structural Fire Engineering	15	S1	Campus	P: ENGR 403 or subject to approval of the Head of Department R: ENCI 661

ENFE 602	Fire Dynamics	15	S1	Campus	P: ENGR 403 EQ: ENCI 663
ENGR 403	Fire Engineering	15	SU1	Campus	P: Subject to approval of the Director of Studies
			S1	Campus	
ENGR 621	Energy, Technology and Society	15	S1	Campus	P: Subject to the approval of the Head of Department.
ENNR 423	Sustainable Energy Systems	15	S1	Campus	P: EMTH 210, ENCI 199, ENCN 201, ENCN 213, ENCN 221, ENCN 231, ENCN 242, ENCN 253, ENCN 261, ENCN 281, ENCN 375
ENTR 401	Fundamentals of Transport Engineering	15	NO		P: Subject to approval of the Programme Director R: ENCI 412
ENTR 603	Advanced Pavement Design	15	NO		P: Subject to approval of the Programme Director.
ENTR 604	Road Asset Management	15	NO		P: Subject to approval of the Programme Director.
ENTR 617	Traffic Network Modelling and Optimization	15	NO		P: ENCN 412: traffic engineering or equivalent
ENTR 619	Special Topic: Quantitative Techniques for Transport Engineering and Planning	15	NO		P: Subject to approval of the Programme Director