CIVIL ENGINEERING (B.ENG.) (139 CREDITS)

Offered by: Civil Engineering (Faculty of Engineering)
Degree: Bachelor of Engineering
Program credit weight: 139 credits

Program Description

Program credit weight for Quebec CEGEP students: 110 credits

The Civil Engineering program is comprehensive in providing the fundamentals in mechanics and engineering associated with the diverse fields of the profession, in offering choices of specialization, and in fully reflecting the advances in science, mathematics, engineering, and computing that have transformed all fields of engineering in recent years. The resulting knowledge and training enables graduates to not only enter the profession thoroughly well prepared, but also to adapt to further change.

The required courses ensure a sound scientific and analytical basis for professional studies through courses in solid mechanics, fluid mechanics, soil mechanics, environmental engineering, water resources management, structural analysis, systems analysis, and mathematics. Fundamental concepts are applied to various fields of practice in both required and complementary courses.

By a suitable choice of complementary courses, students can attain advanced levels of technical knowledge in the specialized areas mentioned above. Alternatively, students may choose to develop their interests in a more general way by combining complementary courses within the Department with several from other departments or faculties.

Note: For information about Fall 2025 and Winter 2026 course offerings, please check back on May 8, 2025. Until then, the "Terms offered" field will appear blank for most courses while the class schedule is being finalized.

Required Year 0 (Freshman) Courses (29 credits)

Generally, students admitted to Engineering from Quebec CEGEPs are granted transfer credit for these Year 0 (Freshman) courses and enter a 110-credit program.

For information on transfer credit for French Baccalaureate, International Baccalaureate exams, Advanced Placement exams, Advanced Levels, and Science Placement Exams, see http://www.mcgill.ca/engineering/current-students/undergraduate/new-stud... and select your term of admission.

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Course	Title	Credits
CHEM 110	General Chemistry 1.	4
CHEM 120	General Chemistry 2.	4
MATH 133	Linear Algebra and Geometry.	3
MATH 140	Calculus 1.	3
MATH 141	Calculus 2.	4
PHYS 131	Mechanics and Waves.	4
PHYS 142	Electromagnetism and Optics.	4

AND 3 credits selected from the approved list of courses in Humanities and Social Sciences, Management Studies, and Law, listed below under Complementary Studies (Group B).

Note: FACC 100 Introduction to the Engineering Profession. (Introduction to the Engineering Profession) must be taken during the first year of study.

Required Non-Departmental Courses (28 credits)

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Course	Title	Credits
COMP 208	Computer Programming for Physical Sciences and Engineering .	3
EPSC 221	General Geology.	3
FACC 100	Introduction to the Engineering Profession.[1]	1
FACC 250	Responsibilities of the Professional Engineer.	0
FACC 300	Engineering Economy.	3
FACC 400	Engineering Professional Practice.	1
MATH 262	Intermediate Calculus.	3
MATH 263	Ordinary Differential Equations for Engineers.	3
MATH 264	Advanced Calculus for Engineers.	3
MECH 261	Measurement Laboratory.	2
MECH 289	Design Graphics.	3
WCOM 206	Communication in Engineering.	3

[1] Note: FACC 100 Introduction to the Engineering Profession. must be taken during the first year of study.

Required Civil Engineering Courses (61 credits)

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Course	Title	Credits
CIVE 202	Construction Materials.	4
CIVE 205	Statics.	3
CIVE 206	Dynamics.	3
CIVE 207	Solid Mechanics.	4
CIVE 208	Civil Engineering System Analysis.	3
CIVE 210	Surveying.	2
CIVE 225	Environmental Engineering.	4
CIVE 290	Thermodynamics and Heat Transfer.	3
CIVE 302	Probabilistic Systems.	3
CIVE 311	Geotechnical Mechanics.	4
CIVE 317	Structural Engineering 1.	3
CIVE 318	Structural Engineering 2.	3

CIVE 319	Transportation Engineering.	3
CIVE 320	Numerical Methods.	4
CIVE 323	Hydrology and Water Resources.	3
CIVE 324	Sustainable Project Management.	3
CIVE 327	Fluid Mechanics and Hydraulics.	4
CIVE 418	Design Project.	4
CIVE 432	Technical Paper.	1

Complementary Courses (21 credits)

List A - Design Technical Complementaries

6-15 credits from the following:

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Course	Title	Credits
CIVE 416	Geotechnical Engineering.	3
CIVE 421	Municipal Systems.	3
CIVE 428	Water Resources and Hydraulic Engineering.	3
CIVE 430	Water Treatment and Pollution Control.	3
CIVE 440	Traffic Engineering and Simulation.	3
CIVE 462	Design of Steel Structures.	3
CIVE 463	Design of Concrete Structures.	3

List B - General Technical Complementaries

0-9 credits from the following, or from other suitable undergraduate or 500-level courses:

Expand allContract all

Course	Title	Credits
CHEE 521	Nanomaterials and the Aquatic Environment.[1]	3
CIVE 446	Construction Engineering.	3
CIVE 460	Matrix Structural Analysis.	3
CIVE 470	Undergraduate Research Project.	3
CIVE 507	Wind Engineering.	3
CIVE 512	Advanced Civil Engineering Materials.	3
CIVE 520	Groundwater Hydrology.	3
CIVE 521	Nanomaterials and the Aquatic Environment.[1]	3
CIVE 527	Renovation and Preservation: Infrastructure.	3
CIVE 528	Design of Wood Structures.	3
CIVE 540	Urban Transportation Planning.	3
CIVE 542	Transportation Network Analysis.	3
CIVE 546	Selected Topics in Civil Engineering 1.	3
CIVE 550	Water Resources Management.	3
CIVE 555	Environmental Data Analysis.	3
CIVE 557	Microbiology for Environmental Engineering.	3
CIVE 560	Transportation Safety and Design.	3
CIVE 561	Greenhouse Gas Emissions.	3
CIVE 570	Solar Driven Environmental Processes and Technologies	3
CIVE 572	Computational Hydraulics.	3
CIVE 573	Hydraulic Structures.	3
CIVE 574	Fluid Mechanics of Water Pollution.	3
CIVE 577	River Engineering.	3
CIVE 584	Mechanics of Groundwater Flow.	3
URBP 551	Urban Design and Planning.	3

1 Students may choose only one of CHEE 521 Nanomaterials and the Aquatic Environment. or CIVE 521 Nanomaterials and the Aquatic Environment..

Complementary Studies (6 credits)

Group A - Impact of Technology on Society

3 credits from the following:

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Course	Title	Credits
ANTH 212	Anthropology of Development.	3
BTEC 502	Biotechnology Ethics and Society.	3
ECON 225	Economics of the Environment.	3
ECON 347	Economics of Climate Change.	3
ENVR 201	Society, Environment and Sustainability.	3
GEOG 200	Geographical Perspectives: World Environmental Problems.	3
GEOG 203	Environmental Systems.	3
GEOG 205	Global Change: Past, Present and Future.	3
GEOG 302	Environmental Management 1.	3
MGPO 440	Strategies for Sustainability.[1]	3
PHIL 343	Biomedical Ethics.	3
RELG 270	Religious Ethics and the Environment.	3
SOCI 235	Technology and Society.	3
SOCI 312	Sociology of Work and Industry.	3
URBP 201	Planning the 21st Century City.	3

1 Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

Group B - Humanities and Social Sciences, Management Studies, and Law

3 credits at the 200 level or higher from the following departments:

Anthropology (ANTH)

Economics (any 200- or 300-level course excluding ECON 227 Economic Statistics. and ECON 337 Introductory Econometrics 1.)

History (HIST)

Philosophy (excluding PHIL 210 Introduction to Deductive Logic 1. and PHIL 310 Intermediate Logic.)

Political Science (POLI)

Psychology (excluding PSYC 204 Introduction to Psychological Statistics. and PSYC 305 Statistics for Experimental Design., but including PSYC 100 Introduction to Psychology.)

Religious Studies (RELG) (excluding courses that principally impart language skills, such as[1] Sanskrit, Tibetan, Tamil, New Testament Greek, and Biblical Hebrew)

School of Social Work (SWRK)

Sociology (excluding SOCI 350 Statistics in Social Research.)

OR one of the following:

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Course	Title	Credits
ARCH 528	History of Housing.	3
BUSA 465	Technological Entrepreneurship.[2]	3
CLAS 203	Greek Mythology.	3
ENVR 203	Knowledge, Ethics and Environment.	3
ENVR 400	Environmental Thought.	3
FACC 220	Law for Architects and Engineers.	3
FACC 500	Technology Business Plan Design.	3
FACC 501	Technology Business Plan Project.	3
HISP 225	Hispanic Civilization 1.	3
HISP 226	Hispanic Civilization 2.	3
INDR 294	Introduction to Labour-Management Relations.[2]	3
INTG 215	Entrepreneurship Essentials for Non-Management Students.[3]	3
MATH 338	History and Philosophy of Mathematics.	3
MGCR 222	Introduction to Organizational Behaviour.[2]	3
MGCR 352	Principles of Marketing.[2]	3
ORGB 321	Leadership.[2]	3
ORGB 423	Human Resources Management.[2]	3

1 If you are uncertain whether or not a course principally imparts language skills, please see an adviser in the McGill Engineering Student Centre (Frank Dawson Adams Building, Room 22) or email an adviser.

2 Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

3 INTG 215 Entrepreneurship Essentials for Non-Management Students. is not open to students who have taken INTG 201 Integrated Management Essentials 1. and INTG 202 Integrated Management Essentials 2..

Note regarding language courses: Language courses are not accepted to satisfy the Complementary Studies Group B requirement, effective for students who entered the program as of Fall 2017.