BASC CIVIL ENGINEERING

Civil engineers design the infrastructure on which their communities depend, such as buildings and their foundations, bridges, canals, dams, transportation facilities, municipal sewer and water networks, and wastewater and solid waste treatment systems.

Civil engineering students at the University of Ottawa can take advantage of world-class teaching laboratories, multimedia classrooms and outstanding computer facilities. Students develop expertise in computer applications, field and laboratory testing, and project management, and they are well-equipped to serve their communities upon graduation.

This program is offered in English and in French.

French courses are available in first year and almost all of second year. Most third and fourth year courses are offered in English only.

Program Requirements

Co-operative education is available with this program.

Requirements for this program have been modified. Please consult the 2021-2022 calendars (https://catalogue.uottawa.ca/en/archives/) for the previous requirements.

Compulsory First-Year Courses:

CHM 1311	Principles of Chemistry	3 Units
CVG 1107	Civil Engineering Graphics and Seminars	3 Units
ENG 1112	Technical Report Writing	3 Units
GNG 1103	Introduction to Engineering Design	3 Units
GNG 1105	Engineering Mechanics	3 Units
GNG 1106	Fundamentals of Engineering Computation	3 Units
MAT 1320	Calculus I	3 Units
MAT 1322	Calculus II	3 Units
MAT 1341	Introduction to Linear Algebra	3 Units
PHY 1122	Fundamentals of Physics II	3 Units
3 course units from:		3 Units
ECO 1192	Engineering Economics	
GNG 2101	Introduction to Product Development for Engineers and Computer Scientists	

Compulsory Second-Year Courses:

CVG 2107	Geotechnical Materials and Processes	3 Units
CVG 2116	Introduction to Fluid Mechanics	3 Units
CVG 2132	Fundamentals of Environmental Engineering	3 Units
CVG 2140	Mechanics of Materials I	3 Units
CVG 2141	Civil Engineering Materials	3 Units
CVG 2149	Civil Engineering Mechanics	3 Units
CVG 2171	Surveying and Measurements	3 Units
CVG 2181	Numerical Modelling in Civil Engineering	3 Units
MAT 2322	Calculus III for Engineers	3 Units
MAT 2377	Probability and Statistics for Engineers	3 Units
MAT 2384	Ordinary Differential Equations and Numerical Methods	3 Units
3 course units from:		3 Units
HIS 2129	Technology, Society and Environment Since 1850	

PHI 2394	Scientific Thought and Social Values	

Compulsory Third-Year Courses:

CVG 3106	Soil Mechanics II	3 Units
CVG 3109	Soil Mechanics I	3 Units
CVG 3116	Hydraulics	3 Units
CVG 3120	Hydrology	3 Units
CVG 3132	Physical/Chemical Unit Operation of Water and Wastewater Treatment	3 Units
CVG 3140	Theory of Structures I	3 Units
CVG 3147	Structural Steel Design I	3 Units
CVG 3148	Reinforced Concrete Design I	3 Units
3 course units of science electives		3 Units

Compulsory Fourth-Year Courses:

CVG 4001	Introduction to Civil Engineering Project	3 Units
CVG 4150	Highway and Transportation Engineering	3 Units
CVG 4175	Field Investigations and Environmental Impact Assessment of Civil Engineering Projects	3 Units
CVG 4907	Civil Engineering Design Project	3 Units
GNG 4170	Engineering Law	3 Units
9 course units of technical electives in geotechnical and/or structural engineering		9 Units
9 course units of technical electives in environmental and/or water resources engineering		9 Units
3 complementary electives course units at the undergraduate level [1]		3 Units
Total:		**132 Units**

[1] Complementary elective courses at the undergraduate level includes GNG 2101, GNG 4170, and GNG 4120, but excludes all courses offered by the Faculty of Science and the Faculty of Engineering as well as all courses that have a science, mathematics or engineering content. For a complete list of courses please refer to the list of complementary elective courses (https://www2.uottawa.ca/faculty-engineering/undergraduate-studies/courses-and-course-sequences/complementary-electives/) on the Faculty of Engineering website

List of Optional Courses

Geotechnical Electives:

CVG 4107	Rock Mechanics [2]	3 Units
CVG 4108	Geotechnical Design [1]	3 Units
CVG 4161	Mechanics of Unsaturated Soils	3 Units
CVG 4184	Special Topics in Geotechnical Engineering [2]	3 Units
GEO 4301	Selected Topics in Earth Sciences [3]	3 Units
MCG 4102	Finite Element Analysis [3]	3 Units

Structural Electives:

CVG 4142	Structural Dynamics [2]	3 Units
CVG 4143	Structural Steel Design II	3 Units
CVG 4145	Reinforced Concrete Design II	3 Units
CVG 4146	Structural Design in Timber	3 Units
CVG 4147	Sustainable Building Design	3 Units
CVG 4148	Theory of Structures II [3]	3 Units
CVG 4172	Advanced Concrete Technology	3 Units

CVG 4173	Construction Management [3]	3 Units
CVG 4181	Special Topics in Structural Engineering [2]	3 Units
MCG 4102	Finite Element Analysis [3]	3 Units

Water Resources Electives:

CVG 4110	Hydraulics of Open Channels	3 Units
CVG 4113	Hydraulics of Water Supply and Sewer Systems [4]	3 Units
CVG 4122	Groundwater and Seepage	3 Units
CVG 4186	Special Topics in Water Resources Engineering [2]	3 Units
GEO 3342	Introduction to Hydrogeology [2]	3 Units
GEO 4301	Selected Topics in Earth Sciences [2]	3 Units
MCG 4102	Finite Element Analysis [2]	3 Units

Environmental Engineering Electives:

CHG 4301	Air Pollution Control Processes [2]	3 Units
CHG 4302	Environmental Biotechnology [2]	3 Units
CHG 4385	Adsorption Separations for Environmental Applications [2]	3 Units
CVG 4130	Advanced Environmental Engineering [4]	3 Units
CVG 4133	Solid Waste Management [4]	3 Units
CVG 4135	Water Treatment in Northern Communities	3 Units
CVG 4188	Special Topics in Environmental Engineering [2]	3 Units
GEO 4301	Selected Topics in Earth Sciences [2]	3 Units

Other Electives:

| CVG 4180 | Special Directed Studies [5] | 3 Units |
| CVG 4260 | Thesis [5] | 6 Units |

Note(s)

[1] Except for the structural and geotechnical option.
[2] Except for the engineering management and entrepreneurship option.
[3] Except for the engineering management and entrepreneurship option and structural and geotechnical option.
[4] Except for the environmental and water resources option.
[5] Permission from Associate Chair is required.