

(For students admitted in 2018-19 under the 4-year degree)

BEng in Civil and Environmental Engineering

In addition to the requirements of their major programs, students are required to complete the University requirements for graduation. For details please refer to the respective section on this website.

Some courses can be used to fulfill both Major and University Common Core Requirements. Students may reuse a maximum of 9 credits of these courses to count towards both Requirements.

Students may use no more than 6 credits earned from courses offered in pure online delivery mode to satisfy the graduation requirements of a degree program. This 6-credit limit does not apply to credits obtained through the credit transfer procedures of the University.

For students graduating with an additional major, they must take all the requirements specified for that major, within which they must complete at least 20 single-counted credits. These 20 credits cannot be used to fulfill any other requirements for graduation except for the 120-credit degree requirement.

Major Requirements

Engineering Fundamental Course(s)

| | | | Credit(s) attained |
|------|-------|--|-----------------------|
| COMP | | Note: COMP 1021 <u>OR</u> COMP 1022P <u>OR</u> COMP 1022Q <u>OR</u> COMP 2011 | 3-4 |
| COMP | 1021 | Introduction to Computer Science | 3 |
| COMP | 1022P | Introduction to Computing with Java | 3 |
| COMP | 1022Q | Introduction to Computing with Excel VBA | 3 |
| COMP | 2011 | Programming with C++ | 4 |
| ENGG | 1010 | Academic Orientation | 0 |
| CHEM | | Note: CHEM 1010 <u>OR</u> CHEM 1020 | 3 |
| CHEM | 1010 | General Chemistry IA | 3 |
| CHEM | 1020 | General Chemistry IB | 3 |
| LANG | 2030 | Technical Communication I | 3 |
| MATH | | Note: [(MATH 1012 <u>OR</u> MATH 1013 <u>OR</u> MATH 1023) <u>AND</u> (MATH 1014 <u>OR</u> MATH 1024)] <u>OR</u> [MATH 1020] | 4-7 |
| MATH | 1012 | Calculus IA | 4 |
| MATH | 1013 | Calculus IB | 3 |
| MATH | 1014 | Calculus II | 3 |
| MATH | 1020 | Accelerated Calculus | 4 |
| MATH | 1023 | Honors Calculus I | 3 |
| MATH | 1024 | Honors Calculus II | 3 |
| MATH | 2011 | Introduction to Multivariable Calculus | 3 |
| MATH | 2350 | Applied Linear Algebra and Differential Equations | 3 |

| | | | |
|------|------|-------------------------------------|---|
| PHYS | | Note: PHYS 1112 <u>OR</u> PHYS 1312 | 3 |
| PHYS | 1112 | General Physics I with Calculus | 3 |
| PHYS | 1312 | Honors General Physics I | 3 |

Required Course(s)

| | | | Credit(s) attained |
|------|------|---|-------------------------------|
| CIVL | 1010 | Academic and Professional Development I | 0 |
| CIVL | 1100 | Discovering Civil and Environmental Engineering | 3 |
| CIVL | 2010 | Academic and Professional Development II | 0 |
| CIVL | 2020 | Industrial and BIM Training | 0 |
| CIVL | 2110 | Statics | 3 |
| CIVL | 2120 | Mechanics of Materials | 3 |
| CIVL | 2160 | Modeling Systems with Uncertainties | 3 |
| CIVL | 2170 | Infrastructure Systems Engineering and Management | 3 |
| CIVL | 2410 | Environmental Assessment and Management | 3 |
| CIVL | 2510 | Fluid Mechanics | 3 |
| CIVL | 2810 | Construction Materials | 3 |
| CIVL | 3010 | Academic and Professional Development III | 0 |
| CIVL | 3020 | Internship Training | 0 |
| CIVL | | Note: CIVL 3210 <u>OR</u> CIVL 3610 | 3 |
| CIVL | 3210 | Introduction to Construction Management | 3 |
| CIVL | 3610 | Traffic and Transportation Engineering | 3 |
| CIVL | 3310 | Structural Analysis | 3 |
| CIVL | 3320 | Reinforced Concrete Design | 3 |
| CIVL | 3420 | Water and Wastewater Engineering | 3 |
| CIVL | 3510 | Hydrosystems Engineering | 3 |
| CIVL | 3730 | Fundamentals of Geotechnics | 3 |
| CIVL | 3740 | Geotechnical Analysis and Design | 3 |
| CIVL | | Note: CIVL 4910 <u>OR</u> CIVL 4920 (Students taking the Research Option must take CIVL 4920) | 6 |
| CIVL | 4910 | Civil and Environmental Engineering Final Year Project | 6 |
| CIVL | 4920 | Civil and Environmental Engineering Final Year Thesis | 6 |
| CIVL | 4950 | Civil Engineering Capstone Design Project | 3 |
| ENGG | 2010 | Engineering Seminar Series | 0 |
| LANG | 4033 | Technical Communication II for Civil and Environmental Engineering | 3 |

Elective(s)

| | | Minimum credit(s) required |
|-----------------------------|---|-----------------------------------|
| CIVL/SENG | CIVL (Environmental) Electives [3 courses from the specified elective list. At least 2 courses (6 credits) should be selected from the "Restricted Electives", of which 1 course must be taken from CIVL 4450, CIVL 5450 or CIVL 5460.] | 9 |
| Restricted Electives | | |
| CIVL | 4430 Environmental Impact Assessment | 3 |
| CIVL | 4450 Carbon Footprint Analysis and Reduction | 3 |
| CIVL | 4460 Process Design of Environmental Engineering Facilities | 3 |
| CIVL | 4520 Municipal Hydrosystems Engineering and Management | 3 |
| CIVL | 5410 Physical-Chemical Water/Wastewater Treatment | 3 |
| CIVL | 5420 Biological Waste Treatment | 3 |
| CIVL | 5430 Aquatic Chemistry | 3 |
| CIVL | 5450 Hazardous Waste Treatment and Site Remediation | 3 |
| CIVL | 5460 Landfill Engineering and Design | 3 |
| CIVL | 5470 Industrial Wastewater Treatment | 3 |
| CENG | 4710 Environmental Control | 3 |
| CENG | 4720 Environmental Impact Assessment and Management Systems | 3 |
| Others | | |
| CIVL | Any CIVL courses at 4000-level or above except those listed as "Restricted Electives" above | |
| SENG | Any 3000-level or above courses offered by the Engineering School or engineering departments other than CIVL | |

Student may opt to graduate with or without an option. Students who take an option MUST complete all requirements specified in addition to the major requirements.

Option(s)

Research Option

Students with CGA of 3.15 or above may apply for enrollment in the Research Option. They should declare their intention to enroll in the Option no later than the first term of their third year of study. In addition, students should take CIVL 4920 as specified in the major requirements.

Required Course(s)

| | | Credit(s) attained |
|-----------|--|---------------------------|
| CIVL/UROP | Note: CIVL 4900 <u>OR</u> UROP 1100 | 1 |
| CIVL | 4900 Directed Studies | 1-4 |
| UROP | 1100 Undergraduate Research Opportunities Series 1 | 1 |

Elective Course(s)

**Minimum
credit(s)
required**

Advanced Electives (Courses at 4000- or PG level. Students should seek approval of their advisor for the choices of courses.)

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