

ENVIRONMENTAL ENGINEERING PROGRAM (ENVE)

School of Engineering, College of Engineering and Physical Sciences

The degradation of the environment is a concern shared by citizens, government agencies, non-governmental agencies and businesses. The Environmental Engineering program offered by the School of Engineering provides graduates with design and engineering skills to minimize and prevent the impact of human activities on water, soil and air systems. Both simple and innovative solutions are part of the tool box. Graduates will also creatively integrate humanistic and social perspectives in their solutions.

Major (Honours Program)

| Code | Title | Credits |
|---------------------------|--|---------|
| Semester 1 | | |
| CHEM*1040 | General Chemistry I | 0.50 |
| ENGG*1100 | Engineering and Design I | 0.75 |
| ENGG*1500 | Engineering Analysis | 0.50 |
| MATH*1200 | Calculus I | 0.50 |
| PHYS*1130 | Physics with Applications | 0.50 |
| Semester 2 | | |
| CHEM*1050 | General Chemistry II | 0.50 |
| CIS*1500 | Introduction to Programming | 0.50 |
| ENGG*1210 | Engineering Mechanics I | 0.50 |
| MATH*1210 | Calculus II | 0.50 |
| PHYS*1010 | Introductory Electricity and Magnetism | 0.50 |
| Semester 3 | | |
| ENGG*2100 | Engineering and Design II | 0.75 |
| ENGG*2120 | Material Science | 0.50 |
| ENGG*2130 | Introduction to Environmental Engineering | 0.50 |
| ENGG*2400 | Engineering Systems Analysis | 0.50 |
| MATH*2270 | Applied Differential Equations | 0.50 |
| BIOL*1090 | Introduction to Molecular and Cellular Biology | 0.50 |
| or MICR*2420 | Introduction to Microbiology | |
| Semester 4 | | |
| ENGG*2230 | Fluid Mechanics | 0.50 |
| ENGG*2560 | Environmental Engineering Systems | 0.50 |
| HIST*1250 | Science and Technology in a Global Context | 0.50 |
| MATH*2130 | Numerical Methods | 0.50 |
| STAT*2120 | Probability and Statistics for Engineers | 0.50 |
| 0.50 restricted electives | | 0.50 |
| Semester 5 | | |
| ENGG*3180 | Air Quality | 0.50 |
| ENGG*3240 | Engineering Economics | 0.50 |
| ENGG*3260 | Thermodynamics | 0.50 |
| ENGG*3590 | Water Quality | 0.50 |
| ENGG*3650 | Hydrology | 0.50 |

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| ENGG*3670 | Soil Mechanics | 0.50 |
| Semester 6 | | |
| ENGG*3100 | Engineering and Design III | 0.75 |
| ENGG*3220 | Groundwater Engineering | 0.50 |
| ENGG*3430 | Heat and Mass Transfer | 0.50 |
| ENGG*3440 | Process Control | 0.50 |
| ENGG*3470 | Mass Transfer Operations | 0.50 |
| 0.50 restricted electives | | 0.50 |
| Semester 7 | | |
| ENGG*4000 | Proposal for Engineering Design IV | 0.00 |
| ENGG*4340 | Solid and Hazardous Waste Management | 0.50 |
| ENGG*4370 | Urban Water Systems Design | 0.75 |
| 1.50 restricted electives | | 1.50 |
| Semester 8 | | |
| ENGG*4130 | Environmental Engineering Design IV | 1.00 |
| 2.00 restricted electives | | 2.00 |

Restricted Electives

(see Program Guide for more information)

The Engineering Program requires Environmental Engineering students to complete the following combination of elective credits to complete their program:

- 1.00 credits from the ENVE-1 Environmental Engineering electives
- 2.00 credits from the ENVE-2 Environmental Engineering electives
- 1.50 credits from Complementary Studies electives

Consult the Program Guide for further information on the prerequisite requirements specific to each elective. Students can take a maximum of 1.50 credits at the 1000 level from the above list of electives.

Minor (Honours Program)

Students must be registered in a B.Eng degree program specialization other than Environmental Engineering to apply for a Minor in Environmental Engineering. A Minor in Environmental Engineering consists of at least 5.00 course credits. A maximum of 2.50 course credits taken as part of the Environmental Engineering Minor may also be applied toward the requirements of the B.Eng. Major specialization.

| Code | Title | Credits |
|--|--|---------|
| CHEM*1050 | General Chemistry II | 0.50 |
| ENGG*2560 | Environmental Engineering Systems | 0.50 |
| ENGG*3180 | Air Quality | 0.50 |
| ENGG*3590 | Water Quality | 0.50 |
| Select at least 2.00 credits from the following: | | |
| BIOC*2580 | Introduction to Biochemistry | 0.50 |
| CHEM*2700 | Organic Chemistry I | 0.50 |
| CHEM*3360 | Environmental Chemistry and Toxicology | 0.50 |
| ENGG*3080 | Energy Resources and Technologies | 0.50 |
| ENGG*3250 | Energy Management and Utilization | 0.50 |
| ENGG*3470 | Mass Transfer Operations | 0.50 |
| ENGG*4070 | Life Cycle Assessment for Sustainable Design | 0.50 |
| ENGG*4240 | Site Remediation | 0.50 |
| ENGG*4340 | Solid and Hazardous Waste Management | 0.50 |

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| ENGG*4510 | Assessment and Management of Risk | 0.50 |
| ENGG*4760 | Biological Wastewater Treatment Design | 0.50 |
| ENGG*4770 | Physical and Chemical Water and Wastewater Treatment Design | 0.50 |
| ENGG*4810 | Control of Atmospheric Particulates | 0.50 |
| ENGG*4820 | Atmospheric Emission Control: Combustion Systems | 0.50 |
| ENVS*2030 | Meteorology and Climatology | 0.50 |
| Select at least 1.00 credits from the following: | | |
| ECON*2100 | Economic Growth and Environmental Quality | 0.50 |
| EDRD*2650 | Introduction to Planning and Environmental Law | 0.50 |
| ENVS*2270 | Impacts of Climate Change | 0.50 |
| GEOG*1220 | Human Impact on the Environment | 0.50 |
| GEOG*2210 | Environment and Resources | 0.50 |
| GEOG*3020 | Global Environmental Change | 0.50 |
| GEOG*3210 | Indigenous-Settler Relationships in Environmental Governance | 0.50 |
| PHIL*2070 | Philosophy of the Environment | 0.50 |
| POLS*3370 | Environmental Politics and Governance | 0.50 |
| SOC*2280 | Society, Knowledge Systems and Environment | 0.50 |