WATER RESOURCES ENGINEERING PROGRAM (WRE)

School of Engineering, College of Engineering and Physical Sciences

Water resources engineering focuses on the use and management of land and water resources in rural and urban watersheds. The hydrologic and hydraulic behaviour of watershed flow systems is combined with engineering science and ecological principles in the design of water management systems and strategies. Water management includes flood prevention, warning and control; drainage; design of natural channels; irrigation; and erosion prevention and control. The supply of water for municipal, industrial and agricultural purposes is considered in the context of resource conservation. Identification of potential point and diffused sources of pollutants is used to develop efficient, environmentally sustainable and economical methods to preserve high-quality water to sustain human life and water-dependent ecosystems.

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*2230	Fluid Mechanics	0.50
ENGG*2400	Engineering Systems Analysis	0.50
GEOG*2000	Geomorphology	0.50
MATH*2270	Applied Differential Equations	0.50
STAT*2120	Probability and Statistics for Engineers	0.50
BIOL*1090	Introduction to Molecular and Cellular Biology	0.50
or MICR*2420	Introduction to Microbiology	
Semester 4		
ENGG*2100	Engineering and Design II	0.75
ENGG*2120	Material Science	0.50
ENGG*2550	Water Management	0.50
ENGG*2560	Environmental Engineering Systems	0.50
MATH*2130	Numerical Methods	0.50
0.50 restricted electives		0.50
Semester 5		
ENGG*3240	Engineering Economics	0.50
ENGG*3260	Thermodynamics	0.50
ENGG*3590	Water Quality	0.50
ENGG*3650	Hydrology	0.50
ENGG*3670	Soil Mechanics	0.50
0.50 restricted electives		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
HIST*1250	Science and Technology in a Global Context	0.50
1.00 restricted electives		1.00
Semester 7		
ENGG*3340	Geographic Information Systems in Environmental Engineering	0.50
ENGG*4000	Proposal for Engineering Design IV	0.00
ENGG*4360	Soil-Water Conservation Systems Design	0.75
ENGG*4370	Urban Water Systems Design	0.75
1.00 restricted electives		1.00
Semester 8		
ENGG*4150	Water Resources Engineering Design IV	1.00
ENGG*4250	Watershed Systems Design [1]	0.75
1.00 restricted electives		1.00

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ENGG*4250 Watershed Systems Design can be taken in Semester 6

Restricted Electives

(see Program Guide for more information)

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

- 1.00 credits from the WRE-1 Water Resources Engineering electives
- 1.00 credits from the WRE-2 Environmental and Water Resources electives
- 2.00 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.