



MEngCEM Proposed Program of Study Form

Name: _____

Student ID: _____

Students are required to complete five elective courses in addition to the five core courses. Four infrastructure engineering electives should be chosen from one specialization area. The final elective is selected from the list of technology management courses meant to provide breath.

By applying to enroll in the following courses you assume responsibility for ensuring that you meet all prerequisite requirements.

Required Courses:

	Course Code	Course Title	Session	Remarks
1	CEM1001H	The Challenges of Urban Policy-Making		
2	CEM1002H	Empirical Study of Cities		
3	CEM1003H	Infrastructure and Urban Prosperity		
4	CEM1004H	Cities as Complex Systems		
5	CEM1005H	Integrative Decision Making for Cities		

Infrastructure Engineering Electives (Choose 4 courses from 1 specialization area):

	Course Code	Course Title	Session	Remarks
1				
2				
3				
4				

Technology Management Elective:

	Course Code	Course Title	Session	Remarks
1				

Student Signature: _____ Date: _____

Program Director Signature: _____ Date: _____



MEngCEM Electives

Infrastructure Engineering Electives

Transportations Systems

- CIV516H Public Transit Operations and Planning
- CIV531H Transport Planning
- CIV1506H Freight Transportation and ITS Applications
- CIV1508H Airport Planning and Engineering
- CIV1520H Travel Survey Methods
- CIV1532H Fundamentals of Intelligent Transportation Systems
- CIV1535H Transportation and Development
- CIV1538H Transportation Demand Analysis
- CIV1598H Urban Operations Research

Sustainable Energy Systems

- APS510H Innovative Tech. & Orgs in Global Energy Systems
- APS1202H Engineering & Sustainable Development
- MIE515H Alternative Energy Systems
- MIE1240H Wind Power
- MIE1120H Current Energy Infrastructure & Resources
- MIE1715H Life Cycle Engineering
- ECE1092H Smart Grid Case Studies

Environmental Issues for Healthy Cities

- CIV549H1 Groundwater Flow and Contamination
- CIV1303H Water Resources Systems Modelling
- CIV1308H Physical and Chemical Treatment Processes
- CIV1309H Biological Treatment Processes
- CIV1311H Advanced and Sustainable Water Treatment
- CHE1433H Air Dispersion Modelling

Communications Network

- ECE1524H – Service Provider Networks
- ECE1541H – Communications Networks I
- ECE1548H – Advanced Network Architectures
- ECE1508H – Special Topics in Communications
- ECE1520H – Data Communications I
- ECE1545H – Bridges and Routers

Cyber Security

- ECE568H – Computer Security
- ECE1508H – Special Topics in Communications
- ECE1518H – Seminar in Identity, Privacy and Security
- ECE1776H – Computer Security, Cryptography and Privacy

Urban Structures

- CIV576H – Sustainable Buildings
- CIV1164H – Bridge Engineering
- CIV1167H – Advanced Structural Dynamics
- CIV1169H – Advanced Topics in Building Design
- APS1024H – Infrastructure Resilience Planning
- APS1025H – Infrastructure Protection
- CIV1252H – Infrastructure Renewal

Operations Research

- MIE1603H – Integer Programming
- MIE1616H – Research Topics in Healthcare Engineering
- MIE1620H – Linear Programming and Network Flows
- MIE1621H – Nonlinear Optimization
- MIE1723H – Engineering Maintenance & Management
- MIE1727H – Statistical Methods of Quality Assurance
- MIE1721H – Reliability

Resilience of Critical Infrastructure

- APS1024H – Infrastructure Resilience Planning
- APS1025H – Infrastructure Protection
- CIV1199H – Structures Under Blast and Impact
- URD1044H – Urban Design and Development ***
- URD2041H – Business and Land Use Planning in Real Estate ***

***These courses are external to the Faculty of Applied Science and Engineering. As such, special permission is required to enroll in these courses. To request permission, visit <http://www.sgs.utoronto.ca/currentstudents/Pages/Student-Forms-and-Letters.aspx>, fill out the Add/Drop Course(s) form, and bring it to GB105 with your MEngCEM Proposed Program of Study Form.

Technology Management Electives

- APS1001H – Project Management
- APS1005H – Operations Research for Engineering management
- APS1010H – Cognitive and Psychological Foundations of Effective Leadership
- APS1012H – Management of Innovation in Engineering
- APS1015H – Social Entrepreneurship
- APS1016H – Financial Management for Engineers
- APS1017H – Supply chain Management and Logistics
- APS1088H – Entrepreneurship and Business for Engineers
- APS1201H – Topics in Engineering and Public Policy
- APS120H – Engineering and Sustainable Development
- CIV1307H – Life Cycle Assessment and Sustainability of Engineering Activities