SUSTAINABILITY IN ENGINEERING AND DESIGN (NON-THESIS) (M.ENG.) (45 CREDITS)

Offered by: Trottier Inst Sust,Eng&Design (Faculty of Engineering)
Degree: Master of Engineering
Program credit weight: 45

Program Description

The Master of Engineering in Sustainability in Engineering and Design; Non-Thesis, focuses on the critical sustainability challenges of the 21st century. The program provides students with the opportunity to apply systems-based frameworks and sustainability metrics to analyze problems and design solutions for sustainability in engineering and design. It provides an interdisciplinary working environment for those working on sustainability.

Note: For information about Fall 2025 and Winter 2026 course offerings, please check back on May 8, 2025. Until then, the "Terms offered" field will appear blank for most courses while the class schedule is being finalized.

Required Courses (27 credits)

Expand allContract all

Course	Title	Credits
SEAD 500	Foundations of Sustainability for Engineering and Design.	3
SEAD 510	Energy Analysis.	4
SEAD 520	Life Cycle-Based Environmental Footprinting .	3
SEAD 530	Economics for Sustainability in Engineering and Design.	3
SEAD 540	Industrial Ecology and Systems.	3
SEAD 550	Decision-Making for Sustainability in Engineering and Design.	3
SEAD 660	Strategies for Sustainability .	3
SEAD 670	Collaborative Design for Sustainability.	3

Complementary Courses (18 credits)

Students will take 12 to 18 credits from courses in one or two streams:

Stream 1 - Sustainable Processes and Manufacturing

Expand allContract all

Course	Title	Credits
CHEE 511	Catalysis for Sustainable Fuels and Chemicals.	3
CHEE 521	Nanomaterials and the Aquatic Environment.[1]	3
CIVE 521	Nanomaterials and the Aquatic Environment.[1]	3
CIVE 663	Environmental Fate of Organic Chemicals.	4
CIVE 677	Water-Energy Sustainability.	4
MECH 534	Air Pollution Engineering.	3
MECH 560	Eco-design and Product Life Cycle Assessment .	3
MIME 511	Advanced Subsurface Ventilation and Air Conditioning.	3
MIME 588	Reliability Analysis of Mining Systems.	3
URBP 506	Environmental Policy and Planning.	3

1 Students can take only one of CHEE 521 Nanomaterials and the Aquatic Environment. or CIVE 521 Nanomaterials and the Aquatic Environment.

Stream 2 - Renewable Energy and Energy Efficiency

Expand allContract all

Course	Title	Credits
CHEE 511	Catalysis for Sustainable Fuels and Chemicals.	3
CIVE 677	Water-Energy Sustainability.	4
ECSE 562	Low-Carbon Power Generation Engineering.	4
MECH 534	Air Pollution Engineering.	3

Stream 3 - Sustainable Urban Development

Expand allContract all

Course	Title	Credits
ARCH 515	Sustainable Design.	3
ARCH 517	Sustainable Residential Development.	3
ARCH 564	Design for Development.	3
MECH 534	Air Pollution Engineering.	3
URBP 504	Planning for Active Transportation.	3
URBP 551	Urban Design and Planning.	3
URBP 620	Transport Economics.	4
URBP 651	Redesigning Suburban Space.	3

Stream 4 - Sustainable Infrastructure

Expand allContract all

Course	Title	Credits
ARCH 515	Sustainable Design.	3
ARCH 564	Design for Development.	3
CIVE 540	Urban Transportation Planning.	3
CIVE 621	Sustainable Design of Municipal Systems.	4
CIVE 623	Durability of Construction Materials .	4
CIVE 629	Sustainable Design: Water and Wastewater Facilities .	4
CIVE 652	Bioprocesses for Wastewater Resource Recovery.	4
SEAD 515	Climate Change Adaptation and Engineering Infrastructure .	3
URBP 620	Transport Economics.	4
URBP 651	Redesigning Suburban Space.	3

Up to 6 credits from the following:

Expand allContract all

Course	Title	Credits
BIEN 520	High Throughput Bioanalytical Devices.	3
BREE 518	Ecological Engineering.	3
BREE 520	Food, Fibre and Fuel Elements.	3
CHEE 541	Electrochemical Engineering.	3
CHEE 543	Plasma Engineering.	3
CIVE 550	Water Resources Management.	3
ECSE 507	Optimization and Optimal Control.	3
MECH 535	Turbomachinery and Propulsion.	3
MECH 559	Engineering Systems Optimization.	3
MIME 556	Sustainable Materials Processing.	3
SEAD 600	Sustainability Research 1.	3
SEAD 602	Sustainability Research 2 .	3
URBP 619	Land Use and Transport Planning.	4

NOTE: * Students must find a supervisor from a McGill engineering, urban planning or architecture program before registering for SEAD 600 Sustainability Research 1. and SEAD 602 Sustainability Research 2 ., subject to approval by the program director.

NOTE: Other unlisted 500 level or higher courses taught at McGill may be permitted, subject to approval by the program director.