



Master of Engineering (MEng) in Chemical Engineering Program: Course Requirements 2024 - 2025

Student Status

Full-time students in the MEng program are normally registered during the Fall and Winter terms (September to April) with a regularly scheduled break during Spring/Summer terms (May to August).

Students will be considered full-time if they enroll in minimum of 2 courses (6 units) per term during each of the Fall and Winter terms.

Academic Standing

B- is the minimum passing grade for students enrolled in graduate programs at the University of Calgary. A student who receives a C+ or lower in any course will normally be required to withdraw from the program.

Students are also required to maintain a minimum Grade Point Average (GPA) of 3.0/4.0, each year. A student whose GPA is lower than 3.0 at the time of their registration anniversary will normally be required to withdraw from the program.

University of Calgary Calendar

Please refer to the University of Calgary Graduate Calendar for more detailed information on program regulations and requirements. The Graduate Calendar is available on-line at [University of Calgary: Calendars \(ucalgary.ca\)](https://ucalgary.ca/graduate-calendar)

Created: March 2024

Course based MEng programs in the Department of Chemical Engineering

There are three pathways available within the MEng program, each of which require completion of 10 courses (30 units):

1. Specialization in Chemical Engineering.
2. Specialization in Petroleum Engineering.
3. Specialization in Energy and Environment.

MEng in Chemical and Petroleum Engineering with Chemical Engineering Specialization

YEAR 1

ENGG core	1	required	ENGG 682	Sustainability Engineering	Fall
ENEN core	2	required	ENEN 603	Principles of Environmental Engineering	Fall
ENGG core	3	required	ENGG 681	Engineering Tools	Winter
ENCH core	4	required	ENCH 669	Fundamentals of Transport Phenomena	Winter
Option (3 out of 6)	8, 9, or 10	option	ENCH 565	Process Sensors and Data Acquisition	Winter
Option (3 out of 6)	8, 9, or 10	option	ENCH 650	CO2 Capture, Utilization, and Storage (CCUS): Principles, Technologies, and Analysis	Winter

YEAR 2

ENGG core	5	required	ENGG 687	Ethics, Law and the Engineering Profession	Fall
ENCH core	6	required	ENCH 617	Modelling and Identification Advanced Control	Fall
Option (3 out of 6)	8, 9, or 10	option	ENCH 675	Data Science and Machine Learning in Chemical Engineering	Fall
ENGG core	7	required	ENGG 683	Innovation & Entrepreneurship	Winter
option (3 out of 6)	8, 9, or 10	option	ENCH 609	Natural Gas Processing Technology	Winter
option (3 out of 6)	8, 9, or 10	option	ENCH 671	Science & Technology of Catalysis	Winter
option (3 out of 6)	8, 9, or 10	option	ENCH 673	Engineering Principles in Biotechnology	Winter

MEng in Chemical and Petroleum Engineering with Petroleum Engineering Specialization

YEAR 1

ENGG core	1	required	ENGG 682	Sustainability Engineering	Fall
Option-1 (4 or all out of 5)	5, 6, 7, 8, 9	option	ENPE 621	Applied Reservoir Engineering	Fall
Option-2 (1 or 2 out of 2)	9, 10	option	ENPE 625	Natural Gas Engineering	Fall
ENGG core	2	required	ENGG 681	Engineering Tools	Winter
Option-1 (4 or all out of 5)	5, 6, 7, 8, 9	option	ENPE 622	Subsurface Production Operations	Winter
Option-1 (4 or all out of 5)	5, 6, 7, 8, 9	option	ENPE 624	Enhanced Oil Recovery	Winter

YEAR 2

ENGG core	3	required	ENGG 684	Introduction to Project Management	Fall
Option-1 (4 or all out of 5)	5, 6, 7, 8, 9	option	ENPE 623	Reservoir Analysis and Description	Fall
Option-2 (1 or 2 out of 2)	9, 10	option	ENPE 627	Drilling Engineering	Fall
ENGG core	4	required	ENGG 683	Innovation and Entrepreneurship	Winter
Option-1 (4 or all out of 5)	5, 6, 7, 8, 9	option	ENPE 626	Economic Analysis of Petroleum Systems	Winter

MEng in Chemical and Petroleum Engineering with Energy and Environment Specialization

YEAR 1

ENGG core	1	required	ENGG 682	Sustainability Engineering	Fall
ENGG core	2	required	ENGG 687	Ethics, Law, and the Engineering Profession	Fall
ENEN core	3	required	ENEN 671	Energy and Environment	Fall
ENEN option (choose 5 out of 7)	4, 5, 6, 7, 8	option	ENEN 603*	Principles of Environmental Engineering	Fall
ENEN option (choose 5 out of 7)	4, 5, 6, 7, 8	option	ENEN 605*	Environmental Chemistry and Microbiology	Winter
ENEN option (choose 5 out of 7)	4, 5, 6, 7, 8	option	ENEN 621	Experimental Design and Error Analysis	Winter
ENCH option (choose 2 out of 4)	9, 10	option	ENCH 630	Electrochemical Engineering	Winter

YEAR 2

ENEN option (choose 5 out of 7)	4, 5, 6, 7, 8	option	ENEN 635	Environmental Modelling	Fall
ENEN option (choose 5 out of 7)	4, 5, 6, 7, 8	option	ENEN 697 (ENCH 643)	Air Pollution Mitigation for Environmental Engineers	Fall
ENCH option (choose 2 out of 4)	9, 10	option	ENCH 675	Data Science and Machine Learning in Chemical Engineering	Fall
ENEN option (choose 5 out of 7)	4, 5, 6, 7, 8	option	ENEN 665 (ENCH 665)	Wastewater Issues for the Oil and Gas Industry	Winter
ENEN option (choose 5 out of 7)	4, 5, 6, 7, 8	option	ENEN 693	Life Cycle Assessment	Winter
ENCH option (choose 2 out of 4)	9, 10	option	ENCH 609	Natural Gas Processing Technology	Winter
ENCH option (choose 2 out of 4)	9, 10	option	ENCH 650	CO2 Capture, Utilization, and Storage (CCUS): Principles, Technologies, and Analysis	Winter

*Take either ENEN 603 or ENEN 605. Credit for both these courses will not be granted.