

Process Engineering

Memorial's Faculty of Engineering and Applied Science is the only school in Canada to offer process engineering. The program has a strong focus on clean and green engineering and sustainable resource development. Process is a broad field of engineering that encompasses the development, design, optimization and operation of sustainable processes for human needs.

Process engineering emphasizes the processing and production of clean energy, carbon capture utilization and storage, hydrogen production, food bioprocesses, pharmaceuticals, minerals, petrochemicals, oil and gas, and the mining and processing of any other materials used to obtain valuable products. Students and graduates of the process engineering program will be able to implement academic knowledge and integrated co-operative education experiences in a sustainable, efficient, safe and environmentally conscious manner for large-scale industrial development.

Co-operative Education Opportunities

Co-operative education experiences of students within the Department of Process Engineering include a wide range of industries and opportunities. Examples of what our students can provide to employers include:

Process engineering design – conceptualizing process design, PFDs, P&IDs, equipment design and sizing, instrumentation and controls design, material and energy balances, and economic analysis;

Metal and mineral engineering – assisting to conceptualize, design and implement greener methods to mine and process critical minerals, and to design and manufacture alloys and materials;

Petroleum and petrochemical engineering – helping predict and optimize reservoir performance through reservoir characterization and simulation, production engineering/flow assurance and improved/enhanced recovery from oil and gas fields;

Chemical engineering – supporting chemical unit operations, transport phenomena and reaction/separation processes during process design, optimization and operations;

Clean energy – assisting with the design and feasibility of clean energy solutions from flare management to carbon capture and any color hydrogen;

Pharmaceutical – designing and operating equipment in pharmaceutical production (chemical and biological) and process optimization;

Food engineering – assisting to enhance quality and extend the life of food products and food processing facilities;

Environmental engineering – developing new methods, tools, and technologies for environmental management, pollution prevention, pollution control and mitigation;

Production – maintaining production levels or advising in the purchase and layout of equipment, process operation and/or production;

Bioprocessing engineering – designing processes and bioproducts from biomass and/or designing processes that use biologicals to produce products; and

Reliability and safety – assessing safety and reliability of processes and design inspection, process control and maintenance strategies.

Process Engineering Program Organizational Chart

Term	Fall	Winter	Spring
Year 1	Engineering One		
	Engineering Statics Introduction to Programming Engineering Graphics & Design Mechanisms & Electric Circuits	Physics Chemistry Mathematics English Professional Development Seminars	Work Term 1* * If students complete engineering one requirements within first two terms.
Year 2	Academic Term 3 Introduction to Sustainable Process Engineering General Chemistry II Introductory Organic Chemistry I Engineering Professionalism I Engineering Mathematics Thermodynamics I	Work Term Work Term 1 Work Term 2	Academic Term 4 Advanced Calculus for Engineering Process Engineering Thermodynamics Process Mathematical Methods Process Engineering Calculations Process Fluid Dynamics I
Year 3	Work Term Work Term 1 Work Term 2 Work Term 3	Academic Term 5 Mass Transfer Process Heat Transfer Process Equipment Design I Chemistry & Physics of Engineering Materials Probability & Statistics	Work Term Work Term 2 Work Term 3 Work Term 4
Year 4	Academic Term 6** Process Modelling & Simulation Chemical Reaction Engineering Process Equipment Design II Process Fluid Dynamics II One (1) technical elective	Work Term Work Term 3 Work Term 4 Work Term 5 (Optional)	Academic Term 7 Process Dynamics & Control Process Engineering Project I Process Plant Design & Economics Two (2) technical electives
Year 5	Work Term Work Term 4 Work Term 5 (Optional) Work Term 6 (Optional)	Academic Term 8 Process Engineering Design Project II Engineering Professionalism II Three (3) technical electives	** Start of Technical Stream courses: 1. Chemical & Bioprocess 2. Mineral & Energy Resources

More information ...

Process Engineering
Departmental Office 709-864-2709
www.mun.ca/engineering/process

Course specific information:

