

Chemical Engineering Curriculum - Fall 2010

Non-CEGEP Entry

1st Semester (Fall)		18 Credits	Pre-requisites/Co-requisites Required
CHEM 110	General Chemistry 1	4	-
FACC 100	Introduction to the Engineering Profession	1	-
MATH 133	Linear Algebra and Geometry	3	-
MATH 140	Calculus 1	3	-
PHYS 131	Mechanics and Waves	4	C - MATH 140
CS	Complementary Studies Group B (HSSML) - 1	3	-
2nd Semester (Winter)		18 Credits	Pre-requisites/Co-requisites Required
CHEM 120	General Chemistry 2	4	-
MATH 141	Calculus 2	4	P - MATH 140
PHYS 142	Electromagnetism and Optics	4	P - PHYS 131 / C - MATH 141
CS	Complementary Studies Group A (Impact)	3	-
CS	Complementary Studies Group B (HSSML) - 2	3	-
3rd Semester (Fall)		18 Credits	Pre-requisites/Co-requisites Required
CHEE 200	Introduction to Chemical Engineering	4	-
CHEE 291	Instrumental Measurement Laboratory	4	-
CHEM 212	Introductory Organic Chemistry 1	4	P - CHEM 110 / C - CHEM 120
MATH 262	Intermediate Calculus	3	P - MATH 141, MATH 133
MIME 310	Engineering Economy	3	-
4th Semester (Winter)		16 Credits	Pre-requisites/Co-requisites Required
CHEE 204	Chemical Manufacturing Processes	3	P - CHEE 200
CHEE 220	Chemical Engineering Thermodynamics	3	P - CHEE 200
CHEE 360	Technical Paper 1	1	-
CHEM 234	Topics in Organic Chemistry	3	P - CHEM 212
COMP 208	Computers in Engineering	3	P - MATH 140, MATH 141
MATH 263	Ordinary Differential Equations for Engineers	3	C - MATH 262
5th Semester (Fall)		17 Credits	Pre-requisites/Co-requisites Required
CHEE 314	Fluid Mechanics	4	P - CHEE 204 / C - MATH 264
CHEE 370	Elements of Biotechnology	3	P - CHEM 212
CHEE 380	Materials Science	3	-
CHEE 392	Project Laboratory 1	4	P - CHEE 291
MATH 264	Advanced Calculus for Engineers	3	P - MATH 262 / C - MATH 263
6th Semester (Winter)		18 Credits	Pre-requisites/Co-requisites Required
CHEE 310	Physical Chemistry for Engineers	3	P - CHEE 220 or MIME 212
CHEE 315	Heat and Mass Transfer	4	P - CHEE 314
CHEE 340	Process Modelling	3	P - MATH 263, MATH 264, CHEE 314
CHEE 351	Separation Processes	3	P - CHEE 204, CHEE 220 / C - CHEE 315
CHEE 393	Project Laboratory 2	5	P - CHEE 392
7th Semester (Fall)		19 Credits	Pre-requisites/Co-requisites Required
CHEE 423	Chemical Reaction Engineering	4	P - CHEE 310
CHEE 453	Process Design	4	P - CHEE 315, CHEE 351
CHEE 456	Design Project 1	2	C - CHEE 393, CHEE 453, CHEE 340
CHEE 474	Biochemical Engineering	3	P - CHEE 370
CHEE xxx	Technical Complementary	3	-
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8th Semester (Winter)		17 Credits	Pre-requisites/Co-requisites Required
CHEE 455	Process Control	4	P - CHEE 315, CHEE 351, CHEE 423
CHEE 457	Design Project 2	5	P - CHEE 456
CHEE 462	Technical Paper 2	1	P - CHEE 360
CHEE 484	Materials Engineering	3	P - CHEE 315, CHEE 380
CHEE xxx	Technical Complementary	3	-
FACC 400	Engineering Professional Practice	1	P - FACC 100, 60 program credits

Technical Complementary courses are selected from an approved list given on the next page.

The Complementary Studies (CS) courses are Impact of Technology courses (Group A) and Humanities & Social Sciences, Management Studies and Law courses (Group B). These must be chosen from an approved list of courses/departments, found in the program list in the *Programs, Courses and University Regulations Calendar* (www.mcgill.ca/study/2010-2011/faculties/engineering/undergraduate/ug_engineering_academic_programs) under "Complementary Studies."

Students are responsible for satisfying pre/co-requisites and verifying with their department that they are meeting the requirements of their program.

Technical Complementary Courses - Chemical Engineering

A minimum of 9 credits of complementary courses must be chosen from a list of technical complementaries approved by the Department. The purpose of this requirement is to provide students with an area of specialization within the broad field of chemical engineering. Alternatively, some students use the technical complementaries to increase the breadth of their chemical engineering training.

At least two (2) courses must be chosen from the list below. The remaining course(s) may be taken from other suitable undergraduate courses in the Faculty of Engineering, with departmental permission.

The Technical Complementary courses currently approved by the Department are as follows:

6-9 credits from the following:

	Credits
BIOT 505 Selected Topics in Biotechnology (Biotechnology Minor students only)	3
CHEE 363 Projects Chemical Engineering 1	2
CHEE 438 Engineering Principles in Pulp and Paper Processes	3
CHEE 452 Particulate Systems	3
CHEE 458 Computer Applications	3
CHEE 464 Projects in Chemical Engineering 2	2
CHEE 487 Chemical Processing: Electronics Industry	3
CHEE 494 Research Project and Seminar 1	3
or CHEE 495 Research Project and Seminar 2	4
or CHEE 496 Environmental Research Project	3
CHEE 541 Electrochemical Engineering	3
CHEE 543 Plasma Engineering	3
CHEE 561 Introduction to Soft Tissue Biophysics	3
CHEE 562 Engineering Principles in Physiological Systems	3
CHEE 563 Biofluids and Cardiovascular Mechanics	3
or MECH 563 Biofluids and Cardiovascular Mechanics	3
CHEE 571 Small Computer Applications: Chemical Engineering	3
CHEE 582 Polymer Science & Engineering	3
CHEE 584 Polymer Processing	3
CHEE 591 Environmental Bioremediation	3
CHEE 592 Industrial Air Pollution Control	3
or MECH 534 Air Pollution Engineering	3
CHEE 593 Industrial Water Pollution Control	3
or CIVE 430 Water Treatment and Pollution Control	3
CHEE 594 Biocolloids in Environmental Systems	3
CHEE 595 Energy Recovery, Use, & Impact	3

Courses CHEE 582 and CHEE 584 comprise a Polymeric Materials sequence. Additional courses in this area are available in the Chemistry Department (e.g., CHEM 455) or at the graduate level (CHEE 681 to CHEE 684). The Department has considerable expertise in the polymer area.

Courses CHEE 370 and CHEE 474 make up a sequence in Biochemical Engineering-Biotechnology. Students interested in this area may take additional courses, particularly those offered by the Department of Food Science and Agricultural Chemistry, Faculty of Agricultural and Environmental Sciences, and courses in biochemistry and microbiology. The food, beverage and pharmaceutical industries are large industries in the Montreal area and these courses are relevant to these industries and to the new high-technology applications of biotechnology.

The third area in which there is a sequence of courses is Pollution Control. The Department offers three courses in this area: CHEE 592, CHEE 592, and CHEE 595. As some water pollution control problems are solved by microbial processes, course CHEE 474 is also relevant to the pollution control area. Additional courses in this area are listed in the Environmental Engineering Minor.

A Minor in Biotechnology is also offered in the Faculties of Engineering and of Science with emphasis on molecular biology and chemical engineering processes. A full description of the program appears in the Biotechnology Minor.

Note that many of the technical complementaries are offered only in alternate years. Students should, therefore, plan their complementaries as far ahead as possible. With the approval of the instructor and academic adviser, students may take graduate (500-level) CHEE courses as technical complementaries.