

Chemical Engineering Curriculum - Fall 2011

CEGEP Entry

1st Semester (Fall)		15 credits	Prerequisites/Co-requisites
CHEE 200	Introduction to Chemical Engineering	4	-
CHEE 291	Instrumental Measurement Laboratory	4	-
CHEM 212	Introductory Organic Chemistry 1	4	P - CHEM 110 or equivalent / C - CHEM 120 or equivalent
MATH 262	Intermediate Calculus	3	P - MATH 141, MATH 133
2nd Semester (Winter)		16 credits	Prerequisites/Co-requisites
CHEE 204	Chemical Manufacturing Processes	3	P - CHEE 200
CHEE 220	Chemical Engineering Thermodynamics	3	P - CHEE 200
CHEM 234	Topics in Organic Chemistry	3	P - CHEM 212 or equivalent
COMP 208	Computers in Engineering	3	P - MATH 140, MATH 141
FACC 100	Introduction to the Engineering Profession	1	-
MATH 263	Ordinary Differential Equations for Engineers	3	C - MATH 262
3rd Semester (Fall)		16 credits	Prerequisites/Co-requisites
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	-
MATH 264	Advanced Calculus for Engineers	3	P - MATH 262 / C - MATH 263
MIME 310	Engineering Economy	3	-
4th Semester (Winter)		17 credits	Prerequisites/Co-requisites
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 360	Technical Paper 1	1	-
CS	Complementary Studies Group B (HSSML) - 1	3	-
5th Semester (Fall)		16 credits	Prerequisites/Co-requisites
CHEE 392	Project Laboratory 1	4	P - CHEE 291
CHEE 423	Chemical Reaction Engineering	4	P - CHEE 310
CHEE 453	Process Design	4	P - CHEE 315, CHEE 351
CHEE 462	Technical Paper 2	1	P - CHEE 360
CS	Complementary Studies Group B (HSSML) - 2	3	-
6th Semester (Winter)		18 credits	Prerequisites/Co-requisites
CHEE 393	Project Laboratory 2	5	P - CHEE 392
CHEE 455	Process Control	4	P - CHEE 315, CHEE 351, CHEE 423
CHEE 456	Design Project 1	2	C - CHEE 393, CHEE 453, CHEE 340
CHEE 484	Materials Engineering	3	P - CHEE 315, CHEE 380
FACC 400	Engineering Professional Practice	1	P - FACC 100, 60 program credits
CHEE xxx	Technical Complementary	3	-
7th Semester (Fall)		17 credits	Prerequisites/Co-requisites
CHEE 457	Design Project 2	5	P - CHEE 456
CHEE 474	Biochemical Engineering	3	P - CHEE 370
CHEE xxx	Technical Complementary	3	-
CHEE xxx	Technical Complementary	3	-
CS	Complementary Studies Group A (Impact)	3	-

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 under "Complementary Studies" in the Programs, Courses and University Regulations Calendar (www.mcgill.ca/study).

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) technical complementary courses are to be selected from those offered by the Department (list below). Permission is given to take the third complementary course from other suitable undergraduate courses in the Faculty of Engineering.

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 510	Advanced Separation Processes	3
CHEE 515	Material Surfaces: A Biomimetic Approach	3
or MIME 515	Material Surfaces: A Biomimetic Approach	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
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.