

# Chemical Engineering Curriculum - Fall 2019

CEGEP Entry

1st Term (Fall)		17 credits	Prerequisites/Co-requisites
CHEE 200	Chemical Engineering Principles 1	3	-
CHEE 231	Data Analysis and Design of Experiments	3	-
CHEE 291	Instrumentation and Measurement 1	4	C - CHEE 231
CHEM 212	Introductory Organic Chemistry 1	4	P - CHEM 110 or equivalent / C - CHEM 120 or equivalent
MATH 262	Intermediate Calculus	3	P - MATH 133 or equivalent, MATH 141 or equivalent
2nd Term (Winter)		16 credits	Prerequisites/Co-requisites
CHEE 204	Chemical Engineering Principles 2	3	P - CHEE 200
CHEE 220	Chemical Engineering Thermodynamics	3	P - CHEE 200 / C - MATH 262
CHEM 234	Topics in Organic Chemistry	3	P - CHEM 212
COMP 208	Computers in Engineering	3	P - MATH 140, MATH 141 / C - MATH 133
FACC 100	Introduction to the Engineering Profession	1	-
MATH 263	Ordinary Differential Equations for Engineers	3	C - MATH 262
3rd Term (Fall)		16 credits	Prerequisites/Co-requisites
CHEE 314	Fluid Mechanics	3	C - CHEE 204, MATH 264
CHEE 360	Technical Paper	1	-
CHEE 370	Elements of Biotechnology	3	-
CHEE 380	Materials Science	3	-
CHEE 390	Computational Methods in Chemical Engineering	3	P - CHEE 204, COMP 208, MATH 263 / C - MATH 264
FACC 250	Responsibilities of the Professional Engineer	0	P - FACC 100 or BREE 250
MATH 264	Advanced Calculus for Engineers	3	P - MATH 262 / C - MATH 263
4th Term (Winter)		18 credits	Prerequisites/Co-requisites
CHEE 310	Physical Chemistry for Engineers	3	C - CHEE 220
CHEE 315	Heat and Mass Transfer	3	P - CHEE 314
CHEE 351	Separation Processes	3	P - CHEE 220 / C - CHEE 204, CHEE 315
CHEE 484	Materials Engineering	3	P - CHEE 380
CHEE xxx	Technical Complementary	3	-
CS	Complementary Studies Group B (HSSML)*	3	-
5th Term (Fall)		16 credits	Prerequisites/Co-requisites
CHEE 400	Principles of Energy Conversion	3	P - CHEE 315 / C - CHEE 390, CHEE 484
CHEE 423	Chemical Reaction Engineering	3	P - CHEE 310, CHEE 315
CHEE 453	Process Design	4	C - CHEE 315, CHEE 351
CHEE 474	Biochemical Engineering	3	P - CHEE 370 / C - CHEE 315
FACC 300	Engineering Economy	3	-
6th Term (Winter)		17 credits	Prerequisites/Co-requisites
CHEE 401	Energy Systems Engineering	3	P - CHEE 400
CHEE 440	Process Modelling	3	P - CHEE 423, MATH 264
CHEE 455	Process Control	3	P - CHEE 291 / C - CHEE 423, CHEE 453
CHEE 456	Design Project 1	3	C - CHEE 453
CHEE 491	Instrumentation and Measurement 2	4	P - CHEE 231, CHEE 291 / C - CHEE 423, CHEE 455
FACC 400	Engineering Professional Practice	1	P - FACC 100, FACC 250, and 60 program credits
7th Term (Fall)		17 credits	Prerequisites/Co-requisites
CHEE 457	Design Project 2	5	P - CHEE 456
CHEE xxx	Technical Complementary	3	-
CHEE xxx	Technical Complementary	3	-
CS	Complementary Studies Group A (Impact)*	3	-
CS	Complementary Studies Group B (HSSML)*	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). Students must take one course (3 credits) from Group A and two courses (6 credits) from Group B. The curriculum above includes **suggested** terms during which these courses can be taken. These must be chosen from an approved list of courses/departments, found in the program list under "Complementary Studies" in the Faculty of Engineering Undergraduate section of the Programs, Courses and University Regulations publication ([www.mcgill.ca/study](http://www.mcgill.ca/study)) (see your program listing in the "Browse Academic Units & Programs" section).

\*\*FACC 250 is not yet indicated as a prerequisite in the eCalendar course information ([www.mcgill.ca/study](http://www.mcgill.ca/study)) but it will be before FACC 400 is taken.

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.

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

### List A

3-9 credits from the following:

	Credits	Prerequisites/Co-requisites	
CHEE 301	Resource Recovery from Waste	3	P - CHEE 204, CHEE 220
CHEE 511	Catalysis for Sustainable Fuels and Chemicals	3	P - CHEE 204 and CHEE 310 or permission of instructor
CHEE 515*	Material Surfaces: A Biomimetic Approach	3	P - (CHEE 310, CHEE 380) or (CHEM 233, MIME 261, MIME 317) or permission of instructor
or MIME 515*	Material Surfaces: A Biomimetic Approach	3	permission of instructor

CHEE 521*	Nanomaterials and the Aquatic Environment	3	P - (CHEE 315 or CIVE 225 or MIME 356), (CHEE 310 or CIVE 430 or
or CIVE 521*	Nanomaterials and the Aquatic Environment	3	CHEM 233) or permission of instructor
CHEE 541	Electrochemical Engineering	3	P - CHEE 310 or instructor permission
CHEE 543	Plasma Engineering	3	P - CHEE 220, CHEE 314
CHEE 563*	Biofluids and Cardiovascular Mechanics	3	P - CHEE 314 or MECH 331 or instructor permission
or MECH 563*	Biofluids and Cardiovascular Mechanics	3	
CHEE 571	Small Computer Applications: Chemical Engineering	3	P - Permission of instructor
CHEE 582	Polymer Science & Engineering	3	P - CHEE 314 or equivalent
CHEE 584	Polymer Processing	3	C - CHEE 315 or MIME 356 or equivalent
CHEE 585	Foundations of Soft Matter	3	-
CHEE 587	Chemical Processing: Electronics Industry	3	P - CHEE 310, CHEE 315, and CHEE 380, or equivalent courses, or
CHEE 591	Environmental Bioremediation	3	-
CHEE 593	Industrial Water Pollution Control	3	P - CHEE 314 or equivalent
or CIVE 430	Water Treatment and Pollution Control	3	P - CIVE 225, CIVE 327
MECH 534	Air Pollution Engineering	3	P - MECH 331, MECH 341

\*Students may choose only one course in each of the following sets:

- CHEE 515 or MIME 515
- CHEE 521 or CIVE 521
- CHEE 563 or MECH 563
- CHEE 593 or CIVE 430

#### List B

0-6 credits from the following:

		Credits	Prerequisites/Co-requisites
BIEN 550	Biomolecular Devices	3	P - Permission of instructor
BIOT 505	Selected Topics in Biotechnology (Biotechnology Minor students)	3	-
BREE 325	Food Process Engineering	3	-
BREE 522	Bio-Based Polymers	3	P - BREE 216 and BREE 341, or permission of instructor
CHEE 363*	Projects Chemical Engineering 1	2	P - CHEE 200
or CHEE 494*	Research Project and Seminar 1	3	-
or CHEE 495*	Research Project and Seminar 2	4	-
or CHEE 496*	Environmental Research Project	3	-
CIVE 557	Microbiology for Environmental Engineering	3	P - CIVE 225 or instructor permission
MIME 470	Engineering Biomaterials	3	P - MIME 261 or equivalent, instructor permission
MIME 558	Engineering Nanomaterials	3	P - MIME 260 or MIME 261, MIME 362, or equivalent, or instructor

\*Students may choose only one project course: CHEE 363, CHEE 494, CHEE 495, or CHEE 496

#### List C

0-3 credits

The remaining credits, up to a maximum of 3 credits, may be taken from other suitable undergraduate courses in the Faculty of Engineering, with departmental permission.

**Last update: April 30, 2019**

For the official program listing, see the *Programs, Courses and University Regulations* publication ([www.mcgill.ca/study](http://www.mcgill.ca/study)).