Course Sequence

Chemical Engineering, Biomedical Engineering Option

1st YEAR (30 credits)

		Session	Prerequisite
CHM1311	Principles of Chemistry	Fall	4U chemistry or OAC Chemistry or equivalent.
ENG1112	Technical Report Writing	Fall	
GNG1105	Engineering Mechanics	Fall	Physics 4U, advanced functions and Introductory Calculus 4U or equivalent
GNG1106	Fundamentals of Engineering Computation	Fall	
MAT1320	Calculus I	Fall	One of MAT1339, Ontario 4U Calculus and Vectors MCV4U) or an equivalent.
CHG1125	Chemical Engineering Fundamentals	Winter	CHM1301 or CHM1311
CHM1321	Organic Chemistry I	Winter	CHM1301 or CHM1311 or 4U chemistry or OAC Chemistry or equivalent.
MAT1322	Calculus II	Winter	MAT1320
MAT1341	Introduction to Linear Algebra	Winter	MAT1339 or Ontario 4U Calculus and Vectors (MCV4U), or an equivalent.
PHY1122	Fundamentals of Physics II	Winter	OAC or 4U Physics; corequisite: MAT1320 (preferred) or MAT1330.

2nd YEAR (36 credits)

		Session	Prerequisite
ANP1105	Human Anatomy and Physiology I	Fall	OAC or 4U Biology.
CHG2312	Fluid Flow	Fall	CHG1125
CHG2317	Introduction to Chemical Process Analysis and Design	Fall	CHG1125
CHM2120	Organic Chemistry II	Fall	CHM1321
MAT2322	Calculus III for Engineers	Fall	(MAT1322 or MAT1325 or MAT1332), (MAT1341 or CEGEP linear algebra)
MAT2384	Ordinary Differential Equations and Numerical Methods	Fall	MAT1341, (MAT1322 or MAT1325 or MAT1322)
CHG2314	Heat Transfer Operations	Winter	CHG2312, CHG2317, MAT2384
CHM2330	Physical Chemistry: Introduction to the Molecular Properties of Matter	Winter	(CHM1301 or CHM1311), (MAT1322 or MAT1332), (PHY1121 or PHY1321 or PHY1122 or PHY1331)
ECO1192	Engineering Economics	Winter	
HIS2129 or PHI2394	Technology, Society and Environment since 1800 / Scientific Thought and Social Value	Winter (HIS2129) Fall (PHI2394)	
MAT2377	Probability and Statistics for Engineers	Winter	MAT1320 or MAT1330; corequisite: MAT1322 or MAT1325 or MAT1332
PHI2396	Bioethics	Winter	

3rd YEAR (33 credits)

		Session	Prerequisite
CHG3316	Transport phenomena	Fall	Prerequisites for CHG: CHG2312, CHG2314, CHG2317, MAT2322, MAT2384. Prerequisites for CVG: CHG2317, CVG3132, MAT2322, MAT2384)
CHG3324	Fundamentals and Applications of Chemical Engineering Thermodynamics	Fall	CHG2317
CHG3331	Application of Mathematical Methods to Chemical Engineering	Fall	CHG2312, CHG2314, CHG2317, MAT2322, MAT2384
CHG3335	Process control	Fall	CHG2312, CHG2314, CHG2317, MAT2384. Prerequisite or corequisite: CHG3331
CHG3337	Data Collection and Interpretation	Fall	MAT2377
Complementary elective		Fall/Winter	
CHG3111	Unit operations	Winter	CHG3316
CHG3112	Process Synthesis, Design and Economics	Winter	CHG3316, CHG3324. Prerequisite or corequisite: CHG3111
CHG3122	Chemical engineering practice	Winter	CHG2312, CHG2314, CHG3324
CHG3127	Chemical reaction engineering	Winter	CHG3316, CHG3331
CHG3326	Principles of Phase Equilibria and Chemical Reaction Equilibria	Winter	CHG3316, CHG3324

4th YEAR (33 credits)

		Session	Prerequisite
CHG4116	Chemical Engineering Laboratory	Fall	CHG3122, CHG3111, CHG3127, CHG3326, CHG3335. Prerequisite or corequisite: CHG3337
CHG4305	Advanced Materials in Chemical Engineering	Fall	81 university credits
CHG4343	Computer-Aided Design in Chemical Engineering	Fall	81 university credits including CHG3111, CHG3127, CHG3331, CHG3335
CHG4381	Biochemical Engineering	Fall	81 university credits including CHG3111, CHG3127
CHG4900 or Two Technical electives[3]		Fall/Winter	
CHG4244	Plant design Project	Winter	81 university credits including CHG3111, CHG3112, CHG3122, CHG3127, CHG3316, CHG3324, CHG3326, CHG3331, CHG3335, CHG3337
CHG4307	Clean Processes and Sustainable Development	Winter	81 university credits
GNG4170	Engineering Law	Winter	
Technical elective		Fall/Winter	