Bachelor of Engineering, Chemical Engineering Co-op Student Path

	Summer Term	Fall Term	Winter Term
Year 0 13.5 credits			**ENGR 201** Professional Practice and Responsibility (1.5) **ENGR 213** Applied Ordinary Differential Equations (3) *Pre/Co: MATH 204, Pre: MATH 205* **ENGR 245** Mechanical Analysis (3) *Pre: PHYS 204, Pre/Co: ENGR 213* **MIAE 221** Materials Science (3) *Section S or W* *Pre: CHEM 205* **CHME 220** Material Properties and Chemical Characterization (3) *Co: MIAE 221* Winter: 13.5 credits
Year 1 41.5 credits	**ENGR 233** Applied Advanced Calculus (3) *Pre: MATH 204, or MATH 205* *Summer 1* **ENGR 251** Thermodynamics I (3) *Pre: MATH 203* **ENCS 282** Technical Writing and Communication (3) *Pre: EWT or ENCS 272* *Summer 1 or 2* **ENGR 311** Transform Calculus & Partial Differential Equations (3) *Pre: ENGR 213, ENGR 233* *Summer 2* Summer: 12 credits	**ENGR 361** Fluid Mechanics I (3) *Pre: ENGR 213, ENGR 233, ENGR 251* **CHME 200** Introduction to Chemical Process Engineering (3) **CHME 214** Applied Linear Algebra (3) *Pre: MATH 204, MATH 205* **CHME 215** Programming for Chemical and Materials Engineers (3.5) **CHME 351** Chemical Engineering Thermodynamics (3) *Pre: ENGR 251, Co: ENGR 311* Fall: 15.5 credits	**ENGR 371** Probability and Statistics in Engineering (3) *Pre: ENGR 213, ENGR 233* *Section W, tutorial WA or WD* **CHEM 221** Organic Chemistry (3) *Pre: CHEM 205, CHEM 206* **CHME 201** Innovative, Sustainable, and Safe Manufacturing in Chemical Industry (3) *Pre: ENGR 251, CHME 220* **CHME 216** Advanced Programming for Chemical Engineers (3.5) *Pre: CHME 215 or equivalent* **CHME 240** Chemical Engineering Lab I (1.5) *Pre: CHME 200, CHME 214, CHME 351, ENGR 361* Winter: 14 credits
Year 2 22.5 credits	**ENGR 202** Sustainable Development & Environmental Stewardship (1.5) **ENGR 301** Engineering Management Principles & Economics (3) *Summer 1 or 2* **ENGR 392** Impact of Technology on Society (3) *Pre: ENCS 282, ENGR 201, ENGR 202* *Summer 1 or 2* **General Education Elective** Course (3) *Summer 1 or 2* Summer: 10.5 credits	Work Term 1	**ENGR 391** Numerical Methods in Engineering (3) *Pre: ENGR 213, ENGR 233, CHME 215 or equivalent.* ***CHME 301*** *Chemical Reaction Engineering (3)* *Pre: CHME 200, CHME 351* **CHME 320** Technical and Advanced Materials (3) *Pre: CHME 220* **CHME 360** Heat Transfer (3) *Pre: CHME 351, ENGR 311* Winter: 12 credits
Year 3 25.5 credits	**CHME 321** Chemical and Materials Product Design (3) *Pre: CHME 320* *Summer 1* **CHME 361** Mass Transfer and Unit Operations (3) *Pre: CHME 360* *Summer 1* **CHME 470** Biochemical Engineering (3) *Pre: CHME 301* *Summer 1* **Technical Elective** Course (3) *Summer 1 or 2* Summer: 12 credits	**CHME 300** Industrial and Engineering Chemistry (3) *Pre: CHME 200* **CHME 330** Chemical Process Dynamics and Control (3) *Pre: ENGR 311, CHME 301, CHME 361* **CHME 340** Chemical Engineering Lab II (1.5) *Pre: CHME 240, CHME 301, CHME 361* **CHME 362** Chemical Separations Engineering (3) *Pre: CHME 361* **CHME 390** Design Project (3) *Pre:* CHME 201, CHME 301, CHME 321 *Co: ENGR 301, CHME 330, CHME 362* Fall: 13.5 credits	Work Term 2
Year 4 17 credits	Work Term 3	**CHME 490** Capstone Chemical Process Design (3) *Pre: CHME 390* **CHME 316** Advanced Data Analysis and Machine Learning for Chemical Engineers (3.5) *Pre: CHME 216, ENGR 371, ENGR 391* **CHME 415** Computational Modelling for Chemical Engineers (3) *Pre: CHEM 205, CHME 351, ENGR 391* **CHME 440** Chemical Engineering Lab III (1.5) *Pre: CHME 330, CHME 340, CHME 362* **CHME 352** Energy Conversion and Storage (3) *Pre: CHME 351* Fall: 14 credits	**CHME 490** Capstone Chemical Process Design (3) *Pre: CHME 390* Winter: 3 credits

Engineering Core Course	**CHME Core Course**	**Technical Elective Course**	**General Education Elective Course**	**Spanned Course** over two terms
24 credits 9 Courses	84 Credits 28 Courses	9 Credits 3 Courses	3 Credits 1 Courses	6 Credits 1 Courses

Prerequisites and corequisites: a prerequisite is a specific course students need to take before another course. A co-requisite is when a specific course must be taken in the same academic term as another course unless students have already successfully completed it.	Pre= Prerequisite Course Co= Corequisite Course	Total Program Credits: 120 Total No. of Courses: 41