# WINTER TERM COHORT: PROJECTED STUDENT PATHWAY

## YEAR 1: 30 CREDITS

### Winter Term — 16.5 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

**ENGR 251**
Thermodynamics I (3)
Pre: MATH 203

**CHME 200**
Introduction to Chemical Process Engineering (3)

**CHME 214**
Applied Linear Algebra For Chemical Engineers (3)
Pre: MATH 204, and MATH 205

### Summer Term — 13.5 credits

**ENGR 202**
Sustainable Development & Environmental Stewardship (1.5)

**ENGR 233**
Applied Advanced Calculus (3)
Pre: MATH 204, or MATH 205

**ENGR 311**
Transform Calculus & Partial Differential Equations (3)
Pre: ENGR 213, ENGR 233

**ENGR 371**
Probability and Statistics in Engineering (3)
Pre: ENGR 213, ENGR 233

**ENCS 282**
Technical Writing and Communication (3)
Pre: EWT or ENCS 272

## YEAR 2: 32.5 CREDITS

### Fall Term — 15.5 credits

**MIAE 221**
Materials Science (3)

**ENGR 361**
Fluid Mechanics I (3)
Pre: ENGR 213, ENGR 233, ENGR 251

**CHME 215**
Programming for Chemical and Materials Engineers (3.5)

**CHME 220**
Material Properties and Chemical Characterization (3)
Co: MIAE 221

**CHME 351**
Chemical Engineering Thermodynamics (3)
Pre: ENGR 251
Co: ENGR 311

### Winter Term — 17 credits

**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 (1.5)
Pre: CHME 200, CHME 351
Co: ENGR 361

**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

## YEAR 3: 31.5 CREDITS

### Fall Term — 15 credits

**CHEM 221**
Organic Chemistry (3)
Pre: CHEM 205, CHEM 206

**CHME 300**
Industrial and Engineering Chemistry (3)
Pre: CHME 200

**CHME 321**
Chemical and Materials Product Design (3)
Pre: CHME 320

**CHME 361**
Mass Transfer and Unit Operations (3)
Pre: CHME 360

**CHME 470**
Biochemical Engineering (3)
Pre: CHME 301

### Winter Term — 16.5 credits

**ENGR 301**
Engineering Management Principles & Economics (3)

**ENGR 391**
Numerical Methods in Engineering (3)
Pre: ENGR 213, ENGR 233, COMP 248 or COEN 243 or MECH 215 or MIAE 215 or BCEE 231

**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

## YEAR 4: 26 CREDITS

### Fall Term — 14 credits

**CHME 316**
Advanced data analysis and machine learning for chemical engineers (3.5)
Pre: CHME 216, ENGR 371, ENGR 391

**CHME 352**
Energy Conversion and Storage (3)
Pre: CHME 351

**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 490**
Capstone Chemical Process Design (3)
Pre: CHME 390

### Winter Term — 12 credits

**ENGR 392**
Impact of Technology on Society (3)
Pre: ENCS 282, ENGR 201, ENGR 202

**CHME 490**
Capstone Chemical Process Design (3)
Pre: CHME 390

**Technical Elective**
Course (3)

**General Education Elective**
Course (3)

### COLOUR LEGEND

| CHME Core Courses | ENGR Core Courses | Technical Elective Course | General Education Elective Course | Course spanned over two terms |
|---|---|---|---|---|
| 90 credits<br>30 courses | 24 credits<br>9 courses | 3 credits<br>1 course | 3 credits<br>1 course | 6 credits<br>1 course |

### ABBREVIATIONS

**Prerequisite (Pre):**
A course that must be successfully completed before enrolling in another course.

**Corequisite (Co):**
A course that must be taken at the same time as another course unless it has already been completed.

### TECHNICAL ELECTIVE TOPICS

Sustainable Chemical Engineering
Materials Engineering
Data Analytics for Chemical Engineers
Biochemical & Food Engineering
Biomolecular Modelling & Drug Design
Advanced Process Design & Control
Advanced Topics in Chemical Engineering