

# (CHE1) CHEMICAL ENGINEERING - CHEMICAL PROCESS ENGINEERING SUB-PLAN, B.A.SC. (CLASS OF 2028)

General First Year 2024-2025 (<https://www.queensu.ca/academic-calendar/engineering-applied-sciences/first-year-studies/>)

## Second Year CORE 2025-2026

Code	Title	Units
CHEE 209	Analysis of Process Data	3.50
CHEE 221	Chemical Processes and Systems	3.50
CHEE 224	Transport Phenomena Fundamentals <sup>2</sup>	3.00
ENCH 211	Main Group Chemistry	4.75
ENCH 212	Principles of Chemical Reactivity	4.00
MTHE 225	Ordinary Differential Equations	3.50
APSC 200	Engineering Design & Practice II	4.00
APSC 293	Engineering Communications 2	1.00
CHEE 210	Thermodynamics of Energy Conversion Systems	3.50
CHEE 218	Laboratory Projects I	2.50
CHEE 222	Process Dynamics and Numerical Method	3.50
CHEE 223	Fluid Mechanics	3.50
ENCH 245	Applied Organic Chemistry I	4.75
<b>Total Units</b>		<b>45.00</b>

## Third Year CORE 2026-2027

Code	Title	Units
APSC 221	Economic and Business Practice	3.00
CHEE 311	Fluid Phase and Reaction Equilibrium	3.50
CHEE 315	Laboratory Projects II	4.00
CHEE 321	Chemical Reaction Engineering	3.50
CHEE 330	Heat and Mass Transfer	3.50
CHEE 380	Biochemical Engineering	3.50
CHEE 319	Process Dynamics and Control	3.50
CHEE 331	Design of Unit Operations	4.50
CHEE 361	Engineering Communications, Ethics and Professionalism	1.00
CHEE 371	Mitigation of Industrial Pollution	3.50
Complementary Studies F/W		3.00
Technical Elective F/W		6.00
<b>Total Units</b>		<b>42.50</b>

## Fourth Year CORE 2027-2028

Code	Title	Units
CHEE 418	Strategies for Process Investigations	3.50
CHEE 472	Chemical Process Design I	3.50
CHEE 412	Transport Phenomena	3.50
CHEE 473	Chemical Process Design II	3.50
Complementary Studies F/W		6.00
Technical Elective F/W		9.00
<b>Select from the following options:</b>		<b>7.00</b>
APSC 400	Technology, Engineering & Management (TEAM)	
APSC 401	Interdisciplinary Projects (PLUS a TECH elective) <sup>1</sup>	
APSC 480	Multi-disciplinary Industry	
CHEE 410	Engineering Innovation and Entrepreneurship (PLUS a TECH elective) <sup>1</sup>	
CHEE 420	Laboratory Projects III (PLUS a TECH elective) <sup>1</sup>	
CHEE 421	Research Project	
<b>Total Units</b>		<b>36.00</b>

<sup>1</sup> **PLUS a TECH elective from either Group A or Group B count together as one choice.** This technical elective is counted separate from the technical elective requirements of the program.

<sup>2</sup> For 2025-2026 only, students will take MTHE 227 in place of CHEE 224.

## Technical Electives

Students in the CHE1 Process Engineering sub-plan must take five (5) technical elective (TECH) courses - three (3) technical elective courses from the Technical Electives Group A list and two (2) courses from either the Technical Electives Group A or Technical Electives Group B list.

For students interested in a **Minerals Processing/Metal Extraction** focus the recommended course sequence is:

1. MINE 266 Applied Chemistry for Mining (Winter term of 3rd year),
2. MINE 335 Mineral Processing (Fall term of 4th year), and



3. MNTC 415 Metal Extraction Processes (Fall or Winter term of 4th year).

Chemical Process and Bioengineering Sub-plan: Technical Electives (<https://www.queensu.ca/academic-calendar/engineering-applied-sciences/academic-plans/chemical-engineering/chemical-process-bioengineering-sub-plan-technical-electives/>)

## Complementary Studies

Students choose a total of 9 credits from the approved Lists A or B, of which 3 credits must be taken from List A.

Refer to the Complementary Studies section of this calendar for details regarding the requirements for all Engineering plans.

## Engineering Economics

To meet the engineering economics requirement, students take APSC 221 (<https://www.queensu.ca/academic-calendar/search/?P=APSC%20221>) Economic And Business Practice (this is a CORE course).

## Communications

To meet the communications course requirement, students take APSC 293 (<https://www.queensu.ca/academic-calendar/search/?P=APSC%20293>) Engineering Communications and CHEE 361 (<https://www.queensu.ca/academic-calendar/search/?P=CHEE%20361>) Engineering Communications, Ethics & Professionalism (these are CORE courses).