### B.S. Degree in Chemical Engineering

**Recommended Curriculum**  
for Students Matriculated before Fall 2020

#### First Year – First Semester
- CHE 111: Introduction to Chemical Engineering I  2
- CHY 121: Introduction to Chemistry  3
- CHY 123: Introduction to Chemistry Laboratory  1
- MAT 126: Calculus I  4
- PHY 121: Physics for Engineers and Physical Scientists I  4
- Human Values & Social Context Elective\(^1\)  3

**Total Credits**: 17

#### First Year – Second Semester
- CHE 112: Introduction to Chemical Engineering II  2
- CHY 122: The Molecular Basis of Chemical Change  3
- CHY 124: The Molecular Basis of Chemical Change Laboratory  1
- MAT 127: Calculus II  4
- PHY 122: Physics for Engineers and Physical Scientists II  4
- ENG 101: College Composition  3

**Total Credits**: 17

#### Second Year – First Semester
- CHE 200: Fundamentals of Process Engineering  4
- CHY 251: Organic Chemistry I  3
- CHY 253: Organic Chemistry Laboratory I  2
- MAT 228: Calculus III  4
- Human Values & Social Context Elective\(^1\)  3

**Total Credits**: 16

#### Second Year – Second Semester
- CHE 385: Statistical Process Control and Analysis  3
- CHE 350: Organic Chemistry II  3
- CHE 252: Introduction to Differential Equations with Linear Algebra  4
- ENG 101: College Composition  3

**Total Credits**: 19

#### Third Year – First Semester
- CHE 352: Process Control  3
- CHE 360: Elements of Chemical Engineering I  4
- CHE 386: Chemical Engineering Thermodynamics II  3
- MEE 252:Statics and Strength of Materials  3
- Approved Advanced Chemistry Elective\(^3\)  3

**Total Credits**: 16

#### Third Year – Second Semester
- CHE 361: Elements of Chemical Engineering II  4
- CHE 368: Kinetics and Reactor Design  3
- CHE 472: Physical Chemistry II  3
- PPA 264: Fundamentals of Electric Circuits\(^2\) or ECE 209: Introduction to Pulp and Paper Industry  3
- Human Values & Social Context Elective\(^1\)  3

**Total Credits**: 19

#### Fourth Year – First Semester
- CHE 363: Chemical Engineering Laboratory II  3
- CHE 477: Elements of Chemical Engineering Design  3
- CHE 478: Analysis, Simulation and Synthesis of Chemical Processes  3
- CHE 493: Chemical Engineering Seminar  0
- Approved Technical Elective II\(^3\)  3
- Human Values & Social Context Elective\(^1\)  3

**Total Credits**: 15

#### Fourth Year – Second Semester
- CHE 479: Chemical Engineering Seminar  1
- CHE 493: Chemical Engineering Seminar  1
- Approved Technical Elective III\(^3\)  3
- Human Values & Social Context Elective\(^1\)  3
- Human Values & Social Context Elective\(^1\)  3

**Total Credits**: 14

**Total Credits Required for Graduation** = **130**

1. The Human Values & Social Context Electives (18 credits) must be selected to meet the University of Maine General Education requirements. These should be selected from a list of approved courses to satisfy each of the five sub-categories: western cultural tradition, social context and institutions, cultural diversity and international perspectives, population and the environment, and artistic and creative expression. Some courses cover more than one sub-category.

2. Students who are cooping in pulp and paper related industry should take PPA 264 as a technical elective in place of ECE 209 in the fourth term of the program. They should take ECE 209 in place of one of the technical electives later in the program.

3. The Advanced Chemistry Elective (3 credits) should be an upper level (300 level or higher) chemistry course or chemical engineering or biochemistry course with significant chemistry content. The Technical Electives (9 credits) should be upper level (300 level or higher) engineering, mathematics or science courses. A list of approved courses is available at the Department Office or at https://umaine.edu/chb/undergraduate-programs/tech-electives/.

**Ethics**

The course sequence CHE 111, CHE 477, CHE 479 and CHE 493 satisfies the University of Maine General Education requirements for ethics. Transfer students who do not complete the sequence of courses should make sure that they satisfy the ethics requirement through their choice of Human Values and Social Context electives.

Reviewed: July 2016