

# CHEMICAL ENGINEERING (CHME)

## Chemical Engineering Undergraduate Courses

### CHME 1130 INTRODUCTION TO CHEMICAL ENGINEERING I (2 credits)

The profession of chemical engineering. Chemical engineers' impact on today's societal issues, team problem solving, communication skills, and the introduction of chemical process flow sheets. (Has guest lectures and requires field trips.)

**Prerequisite(s):** Not open to nondegree students

### CHME 1140 INTRODUCTION TO CHEMICAL ENGINEERING II (2 credits)

Analytical and computational methods for solving problems related to chemical process measurements, properties of single compounds, properties of mixtures, stoichiometry.

**Prerequisite(s):** MATH 1950, CHEM 1180, CHEM 1184 (prereq or coreq).  
Not open to nondegree students.

### CHME 2020 MASS & ENERGY BALANCES (3 credits)

Application of the principle of conservation of mass and energy in the analysis of steady-state chemical processes. Selected topics in physical, chemical and thermal property estimation.

**Prerequisite(s):** CHEM 1190 and CHME 1140 and coreq MATH 1960, not open to nondegree students

### CHME 2030 EQUILIBRIUM STAGE OPERATIONS (3 credits)

Phase equilibria and mass and energy balances applied to staged mass transfer operations.

**Prerequisite(s):** MATH 1960 and CHME 2020 and coreq CIST 1400, not open to nondegree students

### CHME 3120 CHEMICAL ENGINEERING COMPUTATION (3 credits)

Computational methods in orthogonal polynomials, numerical integration, matrix operations and ordinary differential equations as they apply to chemical engineering problems such as separations, reactor design, transport operations and control.

**Prerequisite(s):** Junior standing and CIST 1400 and MATH 2350, not open to nondegree students

### CHME 3220 CHEMICAL ENGINEERING THERMODYNAMICS I (3 credits)

Application of three fundamental laws to chemical engineering problems.

**Prerequisite(s):** CHME 2020 and CSCI 1840.

### CHME 3230 CHEMICAL ENGINEERING THERMODYNAMICS II (3 credits)

Application to multicomponent systems: thermodynamics, phase equilibria, chemical reaction equilibria, and process analysis.

**Prerequisite(s):** CHME 3220, not open to nondegree students

### CHME 3320 TRANSPORT OPERATIONS I (3 credits)

Mass, momentum, and energy transport phenomena and their applications in chemical engineering.

**Prerequisite(s):** MATH 1970 and (CHME 2020, MENG 2000 or MECH 2000), not open to nondegree students

### CHME 3330 TRANSPORT OPERATIONS II (3 credits)

Continuation of CHME 3320.

**Prerequisite(s):** CHME 3320, not open to nondegree students

### CHME 4300 CHEMICAL ENGINEERING LAB (4 credits)

Selected experiments in chemical engineering. Emphasis on experimental design, interpretation of results, and formal oral and written reports. (Cross-listed with CHME 8306).

**Prerequisite(s):** CHME 2030 and CHME 3330 and coreq CHME 4420

### CHME 4340 DIFFUSIONAL OPERATIONS (3 credits)

Application of diffusional theory to the design of processing equipment required for absorption, adsorption, leaching, drying, and chemical reactions. (Cross-listed with CHME 8346).

**Prerequisite(s):** CHME 3330 and CHME 4420 and MATH 3350

### CHME 4420 CHEMICAL REACTOR ENGINEERING AND DESIGN (3 credits)

Basic principles of chemical kinetics are coupled with models descriptive of rates of energy and mass transfer for the analysis and design of reactor systems. (Cross-listed with CHME 8426).

**Prerequisite(s):** CHME 3230

### CHME 4890 AIR POLLUTION, ASSESSMENT AND CONTROL (3 credits)

Survey of the present status of the air pollution problem and the application of engineering and scientific principles to its practical and effective coordinated control. (Cross-listed with CHME 8896).

**Prerequisite(s):** Senior standing