# Chemical Engineering

**128 credit hours total**

**FALL YEAR 1**

- **MATH 220 (4)**
  - Analytic Geometry and Calculus I
  - KSC-3

- **CHM 210 (4)**
  - Chemistry I
  - PR: MATH 220 ≥ C

- **ENGL 100 (3)**
  - Expository Writing I
  - KSC-1

- **DEN 160 (1)**
  - College of Engineering Orientation

- **DEN 161 (1)**
  - Engineering Problem Solving
  - PR/CO: MATH 150

- **CHE 015 (0)**
  - Arts and Humanities
  - KSC-6

**SPRING YEAR 1**

- **MATH 221 (4)**
  - Analytic Geometry and Calculus II

- **CHM 230 (4)**
  - Chemistry II
  - PR: CHM 210

- **ENGL 200 (3)**
  - Expository Writing II
  - KSC-1

- **COMM 106 (3)**
  - Public Speaking
  - KSC-2

- **CHE 015 (0)**
  - Arts and Humanities
  - KSC-6

- **CHE 015 (0)**
  - (16 credit hours)

**FALL YEAR 2**

- **MATH 222 (4)**
  - Analytic Geometry and Calculus III

- **CHM 371 (4)**
  - Chemical Analysis
  - PR: CHM 230

- **PHYS 213 (5)**
  - Engineering Physics I
  - KSC-4

- **CHE 320 (3)**
  - Chemical Process Analysis
  - PR/CO: CHM 230 or CHM 250

- **CHE 416 (3)**
  - Computational Techniques in Chemical Engineering
  - PR: CHE 320 ≥ C

- **CHE 015 (0)**
  - (17 credit hours)

**SPRING YEAR 2**

- **MATH 340 (4)**
  - Elementary Differential Equations
  - PR: MATH 221 ≥ C

- **CHM 531 (3)**
  - Organic Chemistry I
  - PR: CHM 230 or CHM 250

- **PHYS 214 (5)**
  - Engineering Physics II
  - PR: PHYS 213

- **CHE 520 (2)**
  - Chemical Engineering Thermodynamics I
  - PR/CO: MATH 222

- **CHE 416 (3)**
  - Computational Techniques in Chemical Engineering
  - PR: CHE 320

- **CHE 015 (0)**
  - (16 credit hours)

**FALL YEAR 3**

- **CHE 530 (3)**
  - Transport Phenomena I
  - PR: CHE 120 ≥ C

- **CHE 521 (3)**
  - Chemical Engineering Thermodynamics II
  - PR: CHE 520

- **CHE 531 (3)**
  - Transport Phenomena Laboratory
  - PR/CO: CHE 416

- **CHE 560 (3)**
  - Separational Process Design
  - PR: CHE 521

- **CHE 416 (3)**
  - Computational Techniques in Chemical Engineering
  - PR: CHE 320

- **CHE 015 (0)**
  - (17 credit hours)

**SPRING YEAR 3**

- **CHE 535 (3)**
  - Transport Phenomena Laboratory
  - PR/CO: CHE 531

- **CHE 550 (3)**
  - Chemical Reaction Engineering
  - PR: CHE 521, 531

- **CHE 550 (3)**
  - Chemical Reaction Engineering
  - PR: CHE 521, 531

- **CHE 565 (3)**
  - Chemical Engineering Systems Design I
  - PR: CHE 550, 560

- **CHE 570 (3)**
  - Chemical Engineering Systems Design II
  - PR: CHE 550, 560, 570

- **CHE 015 (0)**
  - (15 credit hours)

**FALL YEAR 4**

- **CHE 571 (3)**
  - Chemical Engineering Systems Design II
  - PR: CHE 550, 560, 570

- **CHE 542 (3)**
  - Unit Operations Laboratory
  - PR: CHE 535, 550, 560

- **CHE 565 (3)**
  - Chemical Process Dynamics and Control
  - PR: CHE 550, 416

- **CHE 561 (3)**
  - Chemical Process Dynamics and Control
  - PR: CHE 550, 416

- **CHE 542 (3)**
  - Unit Operations Laboratory
  - PR: CHE 535, 550, 560

- **CHE 565 (3)**
  - Chemical Process Dynamics and Control
  - PR: CHE 550, 416

- **CHE 561 (3)**
  - Chemical Process Dynamics and Control
  - PR: CHE 550, 416

- **CHE 570 (3)**
  - Chemical Engineering Systems Design I
  - PR: CHE 550, 560

- **CHE 015 (0)**
  - (15 credit hours)

**SPRING YEAR 4**

- **CHE 571 (3)**
  - Chemical Engineering Systems Design II
  - PR: CHE 550, 560, 570

- **CHE 542 (3)**
  - Unit Operations Laboratory
  - PR: CHE 535, 550, 560

- **CHE 565 (3)**
  - Chemical Process Dynamics and Control
  - PR: CHE 550, 416

- **CHE 561 (3)**
  - Chemical Process Dynamics and Control
  - PR: CHE 550, 416

- **CHE 542 (3)**
  - Unit Operations Laboratory
  - PR: CHE 535, 550, 560

- **CHE 565 (3)**
  - Chemical Process Dynamics and Control
  - PR: CHE 550, 416

- **CHE 561 (3)**
  - Chemical Process Dynamics and Control
  - PR: CHE 550, 416

- **CHE 570 (3)**
  - Chemical Engineering Systems Design I
  - PR: CHE 550, 560

- **CHE 015 (0)**
  - (15 credit hours)

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**KEY**

- **PR** = Prerequisite for another course
- **PR** = Prerequisite requirement
- **PR/CO** = Prerequisite or concurrent requirement
- **KSC** = K-State Core course
- **See department approved electives**
- **Elective** = Only offered in the semester shown

Flowchart is for advising purposes only. Students are responsible for complying with University Catalog requirements.
Chemical Engineering Curriculum Notes

A minimum cumulative GPA of 2.00 (a C average) for all chemical engineering courses 400 level and above, including chemical engineering elective courses, is required for graduation.

A maximum of two ‘D’ grades in chemical engineering courses 400 level and above is allowed.

Of the 47 credit hours of required chemical engineering and chemical engineering elective courses, at least half of these credit hours must be completed at Kansas State University.

Total credit for undergraduate research (CHE 497 and/or CHE 499) applicable to the degree is limited to a maximum of six (6) credit hours.

Honors Chemistry I (CHM 220) and Honors Chemistry II (CHM 250) may be taken instead of CHM 210, CHM 230 and CHM 371. If this option is elected, two additional credit hours of technical electives are to be selected.

Technical Electives
The departmental requirements below must be satisfied.

All electives must be on the lists approved by the department head and must support the program educational objectives and student outcomes of the chemical engineering program.

Seventeen credit hours of approved technical electives are required. These electives will include:
- Two Chemistry/Biochemistry/Biology courses, one of which must be either CHM 585 OR CHM 595 (6 credit hours in total).
- Advanced Laboratory Experience elective (2 credit hours).
- Engineering Topics elective (3 credit hours).
- Chemical Engineering elective (3 credit hours).
- Engineering Materials elective (3 credit hours).

A list of approved Chemistry/Biology/Biochemistry electives, Advanced Laboratory Experience electives, Chemical Engineering electives and Engineering Topics electives may be found on the department website, che.k-state.edu/student-success/advising.

Students must take either CHE 354, CHE 355, and CHE 356 OR Biomaterials (BME 430/CHE 580) to satisfy the Materials Elective.

Students who satisfy all or part of Kansas State Core Institutional Electives (Requirement #7) with courses that satisfy other degree requirements may use additional unrestricted electives to meet the degree requirement of 128 credit hours.

K-State Core
The K-State Core (KSC) is the university’s version of the systemwide general education framework established by the Kansas Board of Regents.

KSC requirement 1 – English (6 hours)
KSC requirement 2 – Communications (3 hours)
KSC requirement 3 – Math and Statistics (3 hours)
KSC requirement 4 – Natural and Physical Sciences (4-5 hours)
KSC requirement 5* – Social and Behavioral Sciences (6 hours)
KSC requirement 6* – Arts and Humanities (6 hours)
KSC requirement 7 – Institutional Electives (6 hours)

To view course lists for each requirement, visit k-state.edu/provost/kstate-core.

*Requires two courses from two different subject areas.