



Bachelor of Science – Chemical Engineering

Catalog Year: 2024 – 2025

Degree: BSChE

Major: Chemical Engineering

The major map illustrates one path to completing your major, based on faculty members' advice on course sequence and a department's tentative plans for scheduling courses. This document provides general direction.

Roane State Community College

Freshman Year – Fall Semester

| Course Title | Cr | ✓ |
|---------------------------------|-----------|---|
| Humanities/Fine Arts Elective | 3 | |
| MATH 1910 – Calculus I | 4 | |
| CHEM 1110 – General Chemistry I | 4 | |
| HIST I | 3 | |
| ENGL 1010 – Composition I | 3 | |
| Total | 17 | |

Freshman Year – Spring Semester

| Course Title | Cr | ✓ |
|----------------------------------|-----------|---|
| Humanities/Fine Arts Elective | 3 | |
| MATH 1920 – Calculus II | 4 | |
| CHEM 1120 – General Chemistry II | 4 | |
| HIST II | 3 | |
| ENGL 1020 – Composition II | 3 | |
| Total | 17 | |

Sophomore Year – Fall Semester

| Course Title | Cr | ✓ |
|--|-----------|---|
| CHEM 2010 – Organic Chemistry I | 4 | |
| MATH 2110 – Calculus III | 4 | |
| PHYS 2110 – Cal Based Physics I | 4 | |
| ENGL 2120 – Modern American Lit or ENG 2210 – Early British Lit or ENGL – 2310 – Early World Lit | 3 | |
| Social/Behavioral Science | 3 | |
| Total | 18 | |

Sophomore Year – Spring Semester

| Course Title | Cr | ✓ |
|---|-----------|---|
| CHEM 2020 – Organic Chemistry II | 4 | |
| MATH 2120 – Differential Equations | 3 | |
| PHYS 2120 – Cal Based Physics II | 4 | |
| Social/Behavioral Science | 3 | |
| COMM 2025 – Fundamentals of Communication | 3 | |
| Total | 17 | |

Tennessee Technological University

Junior Year – Fall Semester

| Course Title | Cr | ✓ |
|---|-----------|---|
| CHE 1010 – Intro to Chemical Engineering | 1 | |
| ENGR 1120 – Programming ¹ | 2 | |
| CHE 2015 – Intro Chem/Bio An-Scl I | 3 | |
| CHE 3010 – Thermo of ChE Processes | 3 | |
| CHE 3050 – TS1: Cond, Radiation, Diff | 3 | |
| CHE 3051 – TS1: Cond, Radiation, Diff Lab | 1 | |
| Tech Elective ² | 3 | |
| Total | 16 | |

Junior Year – Spring Semester

| Course Title | Cr | ✓ |
|--|-----------|---|
| CHE 1020 – CHE Process, Products, Ethics | 1 | |
| CHE 2020 – Intro to Chem/Bio An-Scl II | 3 | |
| CHE 3510 – Sep and Sol Thermo | 3 | |
| CHE 3511 – Sep and Sol Thermo Lab | 1 | |
| CHE 3550 – TS2: Fluid Mechanics | 3 | |
| CHE 3551 – TS2: Fluid Mechanics Lab | 1 | |
| CHE 3735 – ChE Operations | 2 | |
| Tech Elective ² | 3 | |
| Total | 17 | |

Senior Year – Fall Semester

| Course Title | Cr | ✓ |
|--|-----------|---|
| CHE 4050 – TS3: Diff and Mass Transfer | 3 | |
| CHE 4051 – TS3: Diff and Mass Transfer Lab | 1 | |
| CHE 4060 – ChE Reaction Engineering | 3 | |
| CHE 4061 – ChE Reaction Engineering Lab | 1 | |
| CHE 4410 – Process Design I | 3 | |
| CHEM 3510 – Physical Chemistry I | 4 | |
| Total | 15 | |

Senior Year – Spring Semester

| Course Title | Cr | ✓ |
|---|-----------|---|
| CHE 4250 – ChE Capstone Lab | 2 | |
| CHE 4540 – Process Dynamics and Control | 3 | |
| CHE Tech Elective ³ | 3 | |
| CHE Tech Elective ³ | 3 | |
| CHE 4420 – Process Design II | 3 | |
| CHEM 3520 – Physical Chemistry II | 4 | |
| Total | 18 | |

Red color listed courses are taken at Roane State

Purple color listed courses are taken at TTU

Notes:

Chemical Engineering (CHE) courses generally only offered in the semester listed above

¹ ENGR 1120 must be MATLAB

² Tech Electives can be from any of the following courses:

- Any College of Engineering course at 3000 or 4000 level
- Any BIOL/CHEM/MATH/PHYS/ESS course at 3000 or 4000 level
- Any course with the prior approval of the CHE Undergraduate Program Coordinator

³ Six hours of CHE Tech Elective must be from the following courses: CHE 4245 – Clinical Immersion (3) | CHE 4330 – Polymer Engineering (3) | CHE 4335 – Fuel Cells (3) | CHE 4340 – Introduction to Rheology (3) | CHE 4440 – Protein Engineering (3) | CHE 4550 – Green Engineering (3) | CHE 4560 – Agile Manufacturing (3) | CHE 4661 – Transport in Biochemical and Biological Processes (3) | CHE 4990 – Undergraduate Research (Credit 1 to 3 per semester. Maximum 12 credits.)