



# Bachelor of Science in Chemical Engineering

## Roane State Community College

Associate of Science-Mathematics

### Freshman Year – Fall Semester

| Course Title                       | Cr        | ✓ |
|------------------------------------|-----------|---|
| COLS 1010 Study, Organize, Succeed | 3         |   |
| ENGL 1010 Comp I                   | 3         |   |
| MATH 1910 Calculus I               | 4         |   |
| CHEM 1110 General Chem I           | 4         |   |
| Social/Behavioral Sci Elective     | 3         |   |
| <b>Total</b>                       | <b>17</b> |   |

### Freshman Year – Spring Semester

| Course Title                       | Cr        | ✓ |
|------------------------------------|-----------|---|
| ENGL 1020 Comp II                  | 3         |   |
| MATH 1920 Calculus II              | 4         |   |
| CHEM 1120 General Chem II          | 4         |   |
| Social/Behavioral Science Elective | 3         |   |
| COMM 2025 Fund. Of Communication   | 3         |   |
| <b>Total</b>                       | <b>17</b> |   |

### Sophomore Year – Fall Semester

| Course Title                       | Cr        | ✓ |
|------------------------------------|-----------|---|
| MATH 2110 Calculus III             | 4         |   |
| PHYS 2110 Calculus-based Physics I | 4         |   |
| MATH 2010 Intro to Linear Algebra  | 3         |   |
| History Elective                   | 3         |   |
| CHEM 2010 Organic Chem I           | 4         |   |
| <b>Total</b>                       | <b>18</b> |   |

### Sophomore Year – Spring Semester

| Course Title                        | Cr        | ✓ |
|-------------------------------------|-----------|---|
| PHYS 2120 Calculus-based Physics II | 4         |   |
| MATH 2120 Differential Equations    | 3         |   |
| History Elective                    | 3         |   |
| Literature Elective                 | 3         |   |
| Humanities Elective                 | 3         |   |
| Humanities Elective                 | 3         |   |
| <b>Total</b>                        | <b>19</b> |   |

## The University of Tennessee, Knoxville

### Junior Year – Fall Semester

| Course Title                                       | Cr        | ✓ |
|--|-----------|---|
| CBE 201 Material and Energy Balances               | 4         |   |
| CBE 235 Fundamentals of Molecular Bioengineering   | 3         |   |
| CHEM 210 Foundations of Analytical Chemistry       | 3         |   |
| CHEM 219 Foundations of Analytical Chemistry Lab   | 1         |   |
| EF 105 Comp Methods in Engineering Problem Solving | 1         |   |
| <b>Total</b>                                       | <b>12</b> |   |

### Junior Year – Spring Semester

| Course Title   | Cr        | ✓ |
|--|-----------|---|
| CBE 240 Fluid Flow and Heat Transfer                                 | 4         |   |
| CBE 250 Appl of Chemical and Biomolecular Engineering Thermodynamics | 3         |   |
| PHYS 231 Fundamentals of Physics: Electricity and Magnetism          | 3         |   |
| CHEM Option 1 <sup>1</sup>   | 3         |   |
| <b>Total</b>   | <b>13</b> |   |

### Senior Year – Fall Semester

| Course Title   | Cr        | ✓ |
|--|-----------|---|
| CBE 301 Appl of Numerical and Statistical Tech in Chemical Eng | 4         |   |
| CBE 350 Chemical and Bioengineering Reactor Fund               | 4         |   |
| BIO Option 1 <sup>2</sup>                                      | 3         |   |
| CBE 330 Advanced Chemical Engineering Thermodynamics           | 3         |   |
| <b>Total</b>   | <b>14</b> |   |

### Senior Year – Spring Semester

| Course Title                                      | Cr        | ✓ |
|---|-----------|---|
| CBE 320 Chemical and Biomolecular Engineering Lab | 3         |   |
| CBE 340 Mass Transfer and Separation Processes    | 3         |   |
| CBE 360 Process Dynamics and Control              | 3         |   |
| Tech Elective <sup>3</sup>                        | 3         |   |
| <b>Total</b>                                      | <b>12</b> |   |

### 5<sup>th</sup> Year – Fall Semester

| Course Title   | Cr        | ✓ |
|--|-----------|---|
| CBE 445 Separation Process Tech for the Pharmaceutical and Chemical Process Industries | 3         |   |
| CBE 480 Equipment Design, Economic Methods, and Process Safety                         | 4         |   |
| CBE 415 Advanced Chemical and Biomolecular Engineering Lab                             | 3         |   |
| Tech Elective <sup>3</sup>   | 3         |   |
| <b>Total</b>   | <b>13</b> |   |

### 5<sup>th</sup> Year – Spring Semester

| Course Title  | Cr       | ✓ |
|---|----------|---|
| CBE 488 Honors: Design Intern in Green Eng <u>or</u> CBE 490 Process Design and Econ Analysis | 3        |   |
| Tech Elective <sup>3</sup>  | 3        |   |
| <b>Total</b>  | <b>6</b> |   |

**5<sup>th</sup> Year-Fall Semester**

| Course Title   | Cr        | ✓ |
|--|-----------|---|
| CBE 445 Separation Process Tech for the Pharmaceutical and Chemical Process Industries | 3         |   |
| CBE 480 Equipment Design, Economic Methods, and Process Safety                         | 4         |   |
| CBE 415 Advanced Chemical and Biomolecular Engineering Lab                             | 3         |   |
| Tech Elective <sup>3</sup>   | 3         |   |
| <b>Total</b>   | <b>13</b> |   |

**5<sup>th</sup> Year-Spring Semester**

| Course Title  | Cr       | ✓ |
|---|----------|---|
| CBE 488 Honors: Design Intern in Green Eng <u>or</u> CBE 490 Process Design and Econ Analysis | 3        |   |
| Tech Elective <sup>3</sup>  | 3        |   |
| <b>Total</b>  | <b>6</b> |   |

Total Degree Credits: 71 (RSCC Total Credit hours) + 70 (UTK Total Credit hours) = 141

**NOTE:** Transfer students, including internal University of Tennessee, Knoxville, transfers, must meet the minimum requirements stated below to be considered for admission to a major within the college. These minimum standards for consideration do not guarantee being admitted to the major. The final admission decision for the major resides with the department head or designee.

- Must have earned a minimum 2.8 cumulative average and a C or better in each of these specific courses, or their equivalent: ENGL 101\*, CHEM 122\* and CHEM 123\* formerly CHEM 120\* (for Computer Science students: COSC 101 and COSC 102 or equivalents), and MATH 132\* or MATH 141\* (and subsequent courses in the three sequences, if taken).
- If the student has completed any physics course, he/she must have earned a grade of C or better.
- The overall record will be evaluated for quality and seriousness of purpose. An excessive number of withdrawals, incompletes, repeated courses, or failures may result in denial.
- Any University of Tennessee, Knoxville, student desiring association with one of the departments in the Tickle College of Engineering should go to the Engineering Advising Office. An advising session is held with the major items of consideration being the same as for external transfer students.
- If external transfer students are denied admission to the Tickle College of Engineering, the student must contact Undergraduate Admissions to declare a new major for admission to UT.

<sup>1</sup>**Chem Option I:** Any 200-level or above BCMB courses; any 200-level or above CHEM courses; Environmental Engineering 554, 562; [MSE 201](#) or [MSE 207](#), [MSE 340](#) or [MSE 347](#), [MSE 360](#) or [MSE 367](#), any 200-level or above MICR courses.

<sup>2</sup>**Bio Option I:** [BCMB 230](#), [BCMB 311](#), [BCMB 321](#), [BCMB 401](#), [BCMB 402](#), [BCMB 412](#), [BCMB 415](#); [BIOL 220-BIOL 229](#), [BIOL 240](#), [BIOL 260-BIOL 269](#); [BIOL 280](#); [MICR 210\\*](#), [MICR 321](#), [MICR 329](#).

<sup>3</sup>One technical elective must be a chemical and biomolecular engineering course, with the exclusion of CBE 457. MSE 201 or 207 can be used as a technical elective, if not used to satisfy Chem Option 1.

**For further information, please contact:**

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160 Zeanah Engineering Complex  
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