## Chemical Engineering

131 credits, 2020/2021 Catalog

### First Year

**Fall Semester**
- 3 ENC 1101 Composition I
- 4 MAC 2281 or MAC 2311 Calculus I
- 3 CHM 2045 General Chemistry I
- 1 CHM 2045L General Chemistry I Lab
- R EGN 3000 Foundations of Engineering
- 3 EGN 3000L Foundations of Engineering Lab (TGE)
- 2 ECH 3002 Introduction to ChBME

**Spring Semester**
- 4 MAC 2282 or MAC 2312 Calculus II
- 3 CHM 2046 General Chemistry II
- 1 CHM 2046L General Chemistry II Lab
- 3 PHY 2048 General Physics I
- 1 PHY 2048L General Physics I Lab
- 3 ECH 3854 Engineering Computations

**Summer**
- 3 Upper-Level Dept.

**Total Credits**
- 15

### Second Year

**Fall Semester**
- 4 MAC 2283 or MAC 2313 Calculus III
- 3 PHY 2049 General Physics II
- 1 PHY 2049L General Physics II Lab
- 3 BSC 2010 Cellular Processes
- 3 ECH 3023 Material and Energy Balances
- 3 ECH 3023L Material and Energy Balances Lab
- 1 ENC 1102 Composition II

**Spring Semester**
- 3 EGN 3433 Modeling & Analysis Eng Syst or MAP 2302 Differential Equations
- 3 PHY 2049 General Physics II
- 2 CHM 2210 Organic Chemistry I
- 3 ECH 3023 Material and Energy Balances
- 3 ECH 3023L Material and Energy Balances Lab
- 3 ECH 3023L Material and Energy Balances Lab
- 3 ECH 4846 Numerical Methods
- 3 Gen. Ed. Human & Cultural Diversity

**Summer**
- 3 Upper-Level Dept.

**Total Credits**
- 17

### Third Year

**Fall Semester**
- 3 ECH 3266 Transport Phenomena I
- 3 ECH 4123 ChE Thermodynamics II
- 3 Upper-Level Department or Science Elective
- 3 CHM 2211 Organic Chem. II or BCH 3053 BioChem.
- 3 Gen. Ed. Information & Data Literacy

**Spring Semester**
- 3 ECH 4504 Kinetics and Reaction Eng
- 3 ECH 4418 Separation Processes
- 3 ECH 4267 Transport Phenomena II
- 3 UL Department or Science Elective
- 3 EMA 4003 Intro to Materials Science

**Internship/Co-op**
- List Company/employer name and position

**Total Credits**
- 15

### Fourth Year

**Fall Semester**
- 2 ECH 3240L Chemical Engineering Laboratory I
- 3 ECH 4605 Product and Process Systems Engineering
- 3 ECH 4680 Product Design and Manufacturing
- 3 ECH 4323 Process Dynamics and Control
- 2 ECH 4715 Chemical Process Safety and Ethics

**Spring Semester**
- 2 ECH 4241L Chemical Engineering Laboratory II
- 3 ECH 4615 Product and Process Design (HIP CPST)
- 3 General Education Humanities Elective
- 3 Ethical Reasoning & Civic Engagement
- 3 * General Education Social Sciences Elective

**Apply for Graduation**
- 1

**Total Credits**
- 13

**Total Credits**
- 14

**Note:** Course in bold must be completed with a minimum grade of C within a certain time period, see overleaf.

R – Required course.

* Students must meet the Civic Literacy requirement with credit for AMH 2020, POS 2041 or passing the Civic Literacy test.

TGE = Tampa General Education Creative Thinking

HIP CPST = High Impact Practice Capstone

This semester plan is provided as a guide; the catalog is the definitive source of requirements.
Entrance Requirements for B. S. in Chemical Engineering
(Progression to Upper Division)

In addition to meeting continuation requirements, First Year Students must complete ECH 3023 Material and Energy Balances with a minimum grade of C (C- is insufficient) by no later than the end of the fifth semester (not counting summers). Upper level transfer students must meet the same course and grade requirement by the end of the third semester (not counting summers). The semester count begins upon admission to USF. Students are encouraged to complete this course as soon as possible upon entry at the university.

Continuation and Graduation Requirements

- Prerequisite courses must be completed with a grade of “C” or better (C- is insufficient) before the student is allowed to take the course. The passing grade for terminal courses, which are not prerequisite courses, is a D-.
- Each student must not accumulate more than a total of three (3) grade of D, F, or W, in any combination, for the collection of the required major specialization courses.
- Students must have and maintain a minimum 2.0 Semester GPA, 2.0 Math and Science GPA, 2.0 Engineering GPA, 2.0 Specialization GPA, 2.0 USF GPA, and 2.0 Overall GPA.
- All math, science and engineering courses must be successfully completed in no more than two registered attempts. Grades of W, IF, U, and R are considered attempts.

Course Equivalencies

<table>
<thead>
<tr>
<th>Courses at USF</th>
<th>Courses at a Florida State Institution</th>
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<tbody>
<tr>
<td>MAC 2281 Engineering Calculus I or MAC 2311 Calculus I</td>
<td>MAC X311 or MAC X281</td>
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<tr>
<td>MAC 2282 Engineering Calculus II or MAC 2312 Calculus II</td>
<td>MAC X312 or MAC X282</td>
</tr>
<tr>
<td>MAC 2283 Engineering Calculus III or MAC 2313 Calculus III</td>
<td>MAC X313 or MAC X283</td>
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<tr>
<td>MAP 2302 Differential Equations or EGN 3433 Modeling Analysis of Eng Systems</td>
<td>MAP X302 or MAP X305</td>
</tr>
<tr>
<td>CHM 2045/CHM 2045L General Chemistry I with Lab or CHS 2440/2440L General Chemistry for Engineers with lab</td>
<td>CHM X045/X045L or CHM X045C or CHM X041/X045L or CHS X440/X440L</td>
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<tr>
<td>PHY 2048/2048L General Physics I with PHY 2048L</td>
<td>PHY X048/X048L or PHY X048C or PHY X043/X048L</td>
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<tr>
<td>PHY 2049/2049L General Physics II or PHY 2061 Enriched Physics II with PHY 2049L</td>
<td>PHY X049/X049L or PHY X049C or PHY X044/X049L</td>
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