# Chemical Engineering

131 credits, 2017/2018 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
- 1 FKL Human/Diversity & Global Elective
- **Total Credits:** 15

### Spring Semester
- 3 ENC 1102 Composition II
- 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**
- **Total Credits:** 15

**Total Credits (16)**

## 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 ECH 3854 ChBME Computations
- 3 ECH 3002 Intro to ChBME
- 3 St. GenEd Humanities Elective
- **Total Credits:** 15

### Spring Semester
- 3 EGN 3433 Modeling & Analysis of Engineering Systems
- 3 or MAP 2302 Differential Equations
- 3 ECH 3023 Mat'l & Energy Balances
- 3 FKL Social & Behavioral Science
- 3 FKL Humanities (with HHCP)
- **Total Credits:** 15

### Summer School
- 3 CHM 2210 Org Chem
- 2 CHM 2210L OrgCh Lab
- 1 ChBME Dept Upper Level Elective
- 3 ENC3246 Comm. for Engineers (WI)
- **Total Credits:** 9

## Third Year

### Fall Semester
- 3 ECH 3266 Transport Phenomena I
- 3 ECH 4123 ChE Thermodynamics
- 3 ECH 4846 Numerical Methods
- 3 EMA 4003 Intro to Materials Science
- 3 Department Upper Level Elective
- **Total Credits:** 15

### Spring Semester
- 3 BME 4406 Engineering of Biol Syst.
- 3 ECH 4267 Transport Phenomena II
- 3 ECH 4418 Separations
- 3 ECH 3702 Instrument Systems
- 3 Department Upper Level Elective
- **Total Credits:** 15

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

## Fourth Year

### Fall Semester
- 3 ECH 3240L Chemical Engineering Lab I
- 3 ECH 4504 Kin & Reaction Engineering
- 3 ECH 4605 Product & Process Systems
- 3 Department Upper Level Elective
- 3 FKL Fine Arts Elective
- **Total Credits:** 15

### Spring Semester
- 3 ECH 4241L Chemical Engineering Lab II
- 3 ECH 4323 Process Dynamics and Control
- 3 ECH 4615 Product and Process Design (CD)
- 3 Department Upper Level Elective
- 3 St. GenEd Social Science Elective
- **Total Credits:** 15

**Note:** Courses in bold must be completed with an overall grade point average of 2.75, see overleaf.

† – Optional, but highly encouraged.
R – Required course.
Chemistry will be applied as FKL Life Science
Entrance Requirements for Department of Chemical & Biomedical Engineering

- Completion of the following courses with a minimum grade of C (not a “C-”) in each course.
  - Calculus I or Engineering Calculus I (MAC2311 or MAC2281)
  - General Chemistry I (CHM2045 & 2045L)
  - Calculus II or Engineering Calculus II (MAC2312 or MAC2282)
  - Physics I with lab (PHY2048 or PHY2060, PHY2048L)
  - Calculus III or Engineering Calculus III (MAC2313 or MAC 2283)
  - Physics II with lab (PHY2049 or PHY2061, PHY2049L)
- Need a USF GPA and an Overall GPA of 2.75 or better

Continuation Requirements:

- “C-” is the minimum acceptable grade in an engineering course that is a prerequisite for a subsequent course.
- “C-” is the minimum acceptable grade in FKL courses
- In other engineering courses, any passing grade may be applied but a minimum 2.0 GPA in the following categories must be maintained at all times: Overall, USF, Math/Science, Engineering and Specialization.
- All math, science and engineering courses must be successfully completed in no more than two registered attempts. Grades of W, I, IF, U, R, and M are considered attempts. Registration that is canceled for non-payment is also considered an attempt.

Gordon Rule
Gordon Rule (6A) is fully met through the mathematics courses above, ENC1101, ENC1102, ENC 3246 and by selecting one technical or general education elective that is an approved 6A communication course. Gordon Rule communication requirement is met for any student entering USF with 60 or more hours.

Exit Requirements
Exit requirements must be taken at USF. The Capstone Design Requirement (CD) and Writing Intensive (WI) exit requirements are met through ENC3246 and ECH 4615.

Course Sequence
Courses in bold should be taken in sequence as early as possible in preparation for your major. Foundation of Knowledge & Learning (FKL) courses may be taken in any order.

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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