

# Chemical Engineering

131 credits, 2019/2020 Catalog

## First Year

| Fall Semester                                     | Spring Semester                             | Summer                              |
|---|---|-------------------------------------|
| 3 ENC 1101 Composition I                          | 4 <b>MAC 2282 or MAC 2312 Calculus II</b>   | <u>3</u> Upper-Level Dept. Elective |
| 4 <b>MAC 2281 or MAC 2311 Calculus I</b>          | 3 <b>CHM 2046 General Chemistry II</b>      |                                     |
| 3 <b>CHM 2045 General Chemistry I</b>             | 1 <b>CHM 2046L General Chemistry II Lab</b> |                                     |
| 1 <b>CHM 2045L General Chemistry I Lab</b>        | 3 <b>PHY 2048 General Physics I</b>         |                                     |
| R EGN 3000 Foundations of Engineering             | 1 <b>PHY 2048L General Physics I Lab</b>    |                                     |
| 3 EGN 3000L Foundations of Engineering Lab (TGEC) | <u>3</u> ECH 3854 Engineering Computations  |                                     |
| <u>2</u> ECH 3002 Introduction to ChBME           |   |                                     |
| 16 <i>Total Credits</i>                           | 15 <i>Total Credits</i>                     | 3 <i>Total Credits</i>              |

## Second Year

| Fall Semester                              | Spring Semester   | Summer                              |
|--|---|-------------------------------------|
| 4 <b>MAC 2283 or MAC 2313 Calculus III</b> | 3 EGN 3433 Modeling & Analysis Eng Syst<br>or MAP 2302 Differential Equations | <u>3</u> Upper-Level Dept. Elective |
| 3 <b>PHY 2049 General Physics II</b>       | 3 EGN 3343 Thermodynamics   |                                     |
| 1 <b>PHY 2049L General Physics II Lab</b>  | 3 CHM 2210 Organic Chemistry I  |                                     |
| 3 BSC 2010 Cellular Processes              | 2 CHM 2210 Organic Chemistry I Lab  |                                     |
| 3 ECH 3023 Material and Energy Balances    | 3 ECH 4846 Numerical Methods  |                                     |
| <u>3</u> ENC 1102 Composition II           | <u>3</u> Gen. Ed. Human & Cultural Diversity                                  |                                     |
| 17 <i>Total Credits</i>                    | 17 <i>Total Credits</i>   | 3 <i>Total Credits</i>              |

## Third Year

| Fall Semester                                    | Spring Semester                              | Internship/Co-op                        |
|--|--|---|
| 3 ECH 3266 Transport Phenomena I                 | 3 ECH 4504 Kinetics and Reaction Eng         | List Company/employer name and position |
| 3 ECH 4123 ChE Thermodynamics                    | 3 ECH 4418 Separation Processes              |   |
| 3 Upper-Level Department or Science Elective     | 3 ECH 4267 Transport Phenomena II            |   |
| 3 CHM 2211 Organic Chem. II or BCH 3053 BioChem. | 3 UL Department or Science Elective          | <u>3</u> Upper-Level Dept. Elective     |
| <u>3</u> Gen. Ed. Information & Data Literacy    | <u>3</u> EMA 4003 Intro to Materials Science |   |
| 15 <i>Total Credits</i>                          | 15 <i>Total Credits</i>                      | 3 <i>Total Credits</i>                  |

## Fourth Year

| Fall Semester                                      | Spring Semester                                       |
|--|---|
| 2 ECH 3240L Chemical Engineering Laboratory I      | 2 ECH 4241L Chemical Engineering Laboratory II        |
| 3 ECH 4605 Product and Process Systems Engineering | 3 ECH 4615 Product and Process Design (HIP)           |
| 3 ECH 4680 Product Design and Manufacturing        | 3 General Education Humanities Elective               |
| 3 ECH 4323 Process Dynamics and Control            | 3 Ethical Reasoning & Civic Engagement                |
| 2 ECH 4715 Chemical Process Safety and Ethics      | <u>3</u> * General Education Social Sciences Elective |
| <u>1</u> Apply for Graduation                      |   |
| 13 <i>Total Credits</i>                            | 14 <i>Total Credits</i>                               |

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

TGEC = Tampa General Education Creative Thinking

HIP = High Impact Practice Capstone

## Entrance Requirements for B. S. in Chemical Engineering

- Completion of the following courses with a minimum grade of C and a cumulative 2.75 GPA (based on best attempt) for the following courses:

- \_\_\_ 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 2.0 or better

### Continuation Requirements:

- “C-” is the minimum acceptable grade in an engineering course that is a prerequisite for a subsequent course.
- 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.

### Course Equivalencies

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