# Mechanical Engineering

## 120 credits, 2020/2021 Catalog

### First Year

**Fall Semester**
- 3 ENC 1101 Composition I
- 4 MAC 2281 or MAC 2311 Calculus I
- 3 CHS 2440 or CHM 2045 Chemistry I
- 1 CHS 2440L or CHM 2045L Chemistry Lab
- R EGN 3000 Foundations of Engineering
- 3 EGN 3000L Foundations of Engineering Lab (TGEC)

**Spring Semester**
- 3 ENC 1102 Composition II
- 4 MAC 2282 or MAC 2312 Calculus II
- 3 PHY 2048 General Physics I
- 1 PHY 2048L General Physics I Lab
- 3 St Gen Ed Core Humanities Elective

**Total Credits:** 14

### 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 * EGN 3311 Statics
- 3 EGN 3615 Engr Econ Social/Global Impltn (TGED)

**Spring Semester**
- 3 * EGN 3343 Thermodynamics
- 3 * EML 3500 Mechanics of Solids
- 3 * EGN 3321 Dynamics
- 3 MAP 2302 Differential Equations
- 3 ** St Gen Ed Social Science Elective

**Summer School**
- 3 EML 3035 Prog. Concepts
- 3 EGN 3365 Materials Engineering I
- 3 EML 3022 CAD

**Total Credits:** 15

### Third Year

**Fall Semester**
- 3 EML 3041 Computational Methods
- 3 EML 3701 Fluid Systems
- 3 EML 4325 Mechanical Manufacturing Processes
- 3 EML 3262 Kinematics & Dynamics of Machinery
- 3 EGN 3443 Probability & Statistics for Engineers (TGEI)

**Spring Semester**
- 3 EGN 3373 Electrical Systems I
- 3 EML 3303 Mechanical Engineering Lab I
- 3 EML 4501 Machine Design
- 3 EML 4106C Thermal Systems
- 3 Ethical Reasoning & Civic Engagement

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

**Total Credits:** 15

### Fourth Year

**Fall Semester**
- 3 EML 4123 Heat Transfer
- 3 EML 4302 Mechanical Engineering Lab II
- 3 EML 4220 Vibrations
- 3 Approved Technical/Design/Science Elective
- 1 Apply for Graduation

**Spring Semester**
- 3 EML 4312 Mechanical Controls
- 3 EML 4551 Capstone Design (High Impact Practice Capstone)
- 3 Approved Technical/Design/Science Elective
- 3 Approved Technical/Design/Science Elective

**Total Credits:** 12

**Total Credits (Fourth Year):** 12

**Total Credits (First to Fourth Year):** 120

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**Note:** Courses in bold must be completed with an overall grade point average of 3.00, see overleaf.

- R – Required course.
- * – High priority courses. Statics & Dynamics have min C+ grade. Thermo & Mech Solids are min C grade.
- ** Students must meet the Civic Literacy requirement with credit for AMH 2020, POS 2041 or passing the Civic Literacy test.
- TGED = Tampa General Education; C = Creative Thinking, I = Information & Data Literacy, D = Human & Cultural Diversity

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

- Completion of the following courses with a minimum grade of C (not a “C-”) and a cumulative **3.00 GPA** based on best attempt (max two attempts) for the following courses:
  - Calculus I or Engineering Calculus I (MAC2311 or MAC2281)
  - Calculus II or Engineering Calculus II (MAC2312 or MAC2282)
  - Calculus III or Engineering Calculus III (MAC2313 or MAC 2283)
  - Physics I with lab (PHY2048 and PHY2048L)
  - Physics II with lab (PHY2049 or 2061 and PHY2049L)
  - General Chemistry I or Chemistry for Engineers (CHM2045 & 2045L or CHS 2440 & 2440L)
- Need a USF GPA and an Overall GPA of **2.50** or better

**Continuation and Graduation Requirements**
Reference Catalog: [https://catalog.usf.edu/content.php?catoid=13&navoid=1488](https://catalog.usf.edu/content.php?catoid=13&navoid=1488)

- Completion of EGN 3311 Statics and EGN 3321 Dynamics with a minimum grade of “C+” in each course (grade of C is insufficient).
- Completion of EML 3500 Mechanics of Solids and EGN 3343 Thermodynamics I with a minimum grade of C in each course (C- is insufficient).
- The minimum acceptable grade in all BSME required math and science courses is a C or higher (C- is insufficient). Unless otherwise stated, the minimum acceptable grade in engineering and specialization courses is a C-.
- 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**

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<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>
</tr>
<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>
</tr>
<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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