

# Industrial Engineering

128 credits, 2019/2020 Catalog

## First Year

Fall Semester	Spring Semester
3 ENC 1101 Composition I	3 ENC 1102 Composition II
<b>4 MAC 2281 or MAC 2311 Calculus I</b>	4 <b>MAC 2282 or MAC 2312 Calculus II</b>
<b>3 CHS 2440 or CHM 2045 Chemistry I</b>	3 <b>PHY 2048 General Physics I</b>
<b>1 CHS 2440L or CHM 2045L Chemistry I Lab</b>	1 <b>PHY 2048L General Physics I Lab</b>
R EGN 3000 Foundations of Engineering	3 St. GenEd Humanities Elective
<u>3</u> EGN 3000L Foundations of Eng Lab (TGEC)	<u>3</u> St. GenEd Social Science Elective
<i>14 Total Credits</i>	<i>17 Total Credits</i>

## Second Year

Fall Semester	Spring Semester	Summer
4 <b>MAC 2283 or MAC 2313 Calculus III</b>	3 EGN 3311 Statics	3 EGN 3343 Thermo
3 <b>PHY 2049 General Physics II</b>	3 EGN 3365 Materials Engineering I	3 EGN 3615 Engr Econ (TGED)
1 <b>PHY 2049L General Physics II Lab</b>	3 EGN 3373 Intro to Electrical Systems I	<u>3</u> EGN 1113 Design Graphics
2 EGN 4450 Linear Systems	3 EGN 3433 Modeling & Analysis of Syst or MAP 2302 Differential Equations	
<u>3</u> *EGN 3443 Probability & Statistics for Eng (TGEI)	<u>3</u> ** General Elective	
<i>13 Total Credits</i>	<i>15 Total Credits</i>	<i>9 Total Credits</i>

## Third Year

Fall Semester	Spring Semester	Internship/Co-op
3 ESI 4007 <sup>F</sup> Engineering Programming	3 ESI 4620 <sup>S</sup> Design of Industrial Info Systems	List
3 EIN 4312C <sup>F</sup> Work Analysis	3 EIN 4333 <sup>S</sup> Production Control	Company/employer
3 EIN 4621 <sup>F</sup> Manufacturing Processes	3 ESI 4221 <sup>S</sup> Industrial Statistics/Quality Control	name and position
3 ESI 4312 <sup>F</sup> Deterministic Operations Research	3 ESI 4313 <sup>S</sup> Probabilistic OR	
<u>3</u> ENC 3246 Communication for Engrs	<u>3</u> Tech Elective Industrial Engineering	
<i>15 Total Credits</i>	<i>15 Total Credits</i>	

## Fourth Year

Fall Semester	Spring Semester
3 EIN 4890 <sup>F</sup> I.E. Senior Design Project I (ERCE)	3 EIN 4891 <sup>S</sup> I.E. Senior Design Project II (HIP)
3 ESI 4606 <sup>F</sup> Engineering Analytics I	3 EIN 4243C <sup>S</sup> Human Factors
3 ESI 4244 <sup>F</sup> Design of Experiments	3 EIN 4601C <sup>S</sup> Automation and Robotics
3 ESI 4523 <sup>F</sup> Industrial Systems Simulation	3 ESI 4607 <sup>S</sup> Engineering Analytics II
3 Tech Elective Industrial Engineering	<u>3</u> Tech Elective Industrial Engineering
<u>!</u> Apply for Graduation	
<i>15 Total Credits</i>	<i>15 Total Credits</i>

**Notes:** Courses in bold must be completed with an overall grade point average of 3.0, see overleaf.

R - Required course

\* - **Requires a minimum grade of B or higher (B- is insufficient).**

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

F – Course offered only in the fall semester (EIN and ESI courses are taught once a year)

S – Course offered only in the spring semester (EIN and ESI courses are taught once a year)

TGE = Tampa General Education; C = Creative Thinking, I = Information & Data Literacy, D = Human & Cultural Diversity

ERCE = Ethical Reasoning & Civic Engagement HIP = High Impact Practice Capstone

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

- Completion of the following courses with a minimum grade of C and an cumulative **3.0 GPA\*** (based on best attempt) for the following courses:
  - \_\_\_ **Calculus I or Engineering Calculus I (MAC2311 or MAC2281)**
  - \_\_\_ **Chemistry I (CHS2440 & 2440L or CHM 2045 & 2045L)**
  - \_\_\_ **Calculus II or Engineering Calculus II (MAC2312 or MAC2282)**
  - \_\_\_ **Physics I with lab (PHY2048, 2048L)**
  - \_\_\_ **Calculus III or Engineering Calculus III (MAC2313 or MAC 2283)**
  - \_\_\_ **Physics II with lab (PHY2049, PHY2049L)**
- Need a USF GPA and an Overall GPA of **2.50** or better

**\*Students who meet the minimum USF GPA and Overall GPA requirements, but not the preferred qualifications may submit a Conditional Admission Application to the IMSE Undergraduate Committee for consideration. Fall applications are due by October 1st. Spring applications are due by March 1<sup>st</sup>.**

## Continuation Requirements

- Completion of EGN 3443 Probability and Statistics for Engineers with a grade of B or higher (B- is insufficient).
- The minimum acceptable grade in all BSIE required math, science, engineering, and specialization courses is a C or higher (C- is insufficient).
- A minimum GPA of 2.0 in the following categories must be maintained at all times: Overall, USF, Math/Science, Engineering Courses and Specialization Courses.
- All math, science, engineering, and major/specialization 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 or EGN 3433 Modeling Analysis of Eng Systems	MAP X302 or MAP X305
CHM 2045/CHM 2045L General Chemistry I with Lab Or CHS 2440/2440L General Chemistry for Engineers with lab	CHM X045/X045L or CHM X045C or CHM X041/X045L 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 PHY 2061 Enriched Physics II with PHY 2049L	PHY X049/X049L or PHY X049C or PHY X044/X049L