

Industrial Engineering B.S.I.E.

120 credits, 2022/2023 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 I Lab**
- R EGN 3000 Foundations of Engineering
- 3 EGN 3000L Foundations of Eng Lab (TGEC)

14 *Total Credits*

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. GenEd Humanities Elective
- 3 ** St. GenEd Social Science Elective

17 *Total Credits*

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**
- 2 EGN 4450 Linear Systems
- 3 EGN 3443 Probability & Statistics for Eng (TGEI)
- 1 **Apply for Progression to Upper Division**

13 *Total Credits*

Spring Semester

- 3 EGN 3311 Statics
- 3 EGN 3365 Materials Engineering I
- 3 EGN 3373 Intro to Electrical Systems I
- 3 EGN 3433 Modeling & Analysis of Syst
or MAP 2302 Differential Equations
- 3 ** General Elective

15 *Total Credits*

Summer

- 3 IE Tech Elective
- 3 EGN 3615 Engr Econ
(TGED)
- 3 EGN 1113 Design
Graphics

9 *Total Credits*

Third Year

Fall Semester

- 3 ESI 4007^F Engineering Programming
- 3 EIN 4241^F Human Machine Systems Eng
- 3 EIN 4621^F Manufacturing Processes
- 3 ESI 4312^F Deterministic Operations Research
- 3 ENC 3246 Communication for Engrs

15 *Total Credits*

Spring Semester

- 3 ESI 4620^S Design of Industrial Info Systems
- 3 EIN 4333^S Production Control
- 3 ESI 4221^S Statistical Quality Control
- 3 ESI 4313^S Probabilistic OR

12 *Total Credits*

Summer

- Recommended
Internship/Co-op**
- 1 IE Tech Elective

1 *Total Credits*

Fourth Year

Fall Semester

- 3 EIN 4890^F I.E. Senior Design Project I (TGEE)
- 3 ESI 4606^F Engineering Analytics I
- 3 ESI 4244^F Design of Experiments
- 3 ESI 4523^F Systems Simulation
- 1 **Apply for Graduation**

12 *Total Credits*

Spring Semester

- 3 EIN 4891^S I.E. Senior Design Project II (TGEH)
- 3 EIN 4601C^S Automation and Robotics
- 3 ESI 4607^S Engineering Analytics II
- 3 Industrial Engineering Tech Elective

12 *Total Credits*

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

R - Required course

** Students must meet the Civic Literacy requirement with credit for AMH 2020, POS 2041 and 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)

TGEC = Gen Ed Creative Thinking, TGEI = Gen Ed Information & Data Literacy, TGED = Gen Ed Human & Cultural Diversity

TGEE = Gen Ed Ethical Reasoning & Civic Engagement, TGEH = Gen Ed High Impact Practice Capstone

Industrial Engineering Requirements for Progression to Upper Division

1. Completion of the following courses with a minimum grade of C and a cumulative **3.0 GPA*** (based on best attempt with maximum two attempts) 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)**

2. 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 (#1 above) may submit a Conditional Application for Progression to the IMSE Undergraduate Committee for consideration. Fall applications are due by October 1st. Spring applications are due by March 1st.**

Continuation and Graduation Requirements

Reference Catalog: https://catalog.usf.edu/preview_program.php?catoid=17&poid=7241

- **Completion of EGN 3443 Probability and Statistics for Engineers with a grade of B (not B-) or higher (best attempt) is NO LONGER REQUIRED. Students need a min grade of C (not C-) or higher.**
- The minimum acceptable grade in all BSIE required math, science, engineering, and specialization courses is a C or higher (C- is insufficient).
- 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, engineering, and major/specialization courses must be successfully completed in no more than **two** registered attempts. Grades of W, IF, U, and R are considered attempts.

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