

INDUSTRIAL ENGINEERING

Bachelor of Science in Industrial Engineering (BSIE)



NATURE OF THE WORK

Industrial engineers determine the most effective ways to use the basic factors of production—people, machines, materials, information, and energy—to make a product or provide a service. They are concerned primarily with increasing productivity through the management of people, methods of business organization, and technology. To maximize efficiency, industrial engineers study product requirements carefully and then design manufacturing and information systems to meet those requirements with the help of mathematical methods and models. They develop management control systems to aid in financial planning and cost analysis, and they design production planning and control systems to coordinate activities and ensure product quality. They also design or improve systems for the physical distribution of goods and services and determine the most efficient plant locations. Industrial engineers develop wage and salary administration systems and job evaluation programs. Many industrial engineers move into management positions because the work is closely related to the work of managers.

(compiled from U.S. Dept. of Labor Occupational Outlook Handbook 2010-2011)

USF DEPARTMENT OF INDUSTRIAL & MANAGEMENT SYSTEMS ENGINEERING EXPERTISE

Bio-Health Engineering
Engineering Health Care Systems
Sustainability of Critical Systems
Systems Integration

The University of South Florida Bachelor of Science degree programs in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Industrial Engineering and Mechanical Engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The Bachelor of Science in Computer Science program at the University of South Florida is accredited by the Computing Accreditation Commission of the Accreditation Board for Engineering and Technology. ABET 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 telephone: (410) 347-7700.

> EDUCATION REQUIREMENTS > JOB OUTLOOK > SALARY

- A bachelor's degree in industrial engineering is required for most entry-level jobs, but some research positions may require a graduate degree.
- Continuing education is critical for engineers in order to keep up with improvements in technology.
- Overall job opportunities for engineers are expected to be good.
- Average starting salary - \$58,549 (NACE spring 2011)

REAL WORLD OPPORTUNITIES

Co-ops and Internships – These programs offer students numerous opportunities to engage with the broader-based engineering, technology and science community.

Engineering EXPO – This student-run event exposes school children to science and engineering principles in a two-day, on campus event.

Research Experiences for Undergraduates – The program gives undergraduate students an opportunity to participate. Students work as Research Assistants with professors and graduate students on a variety of exciting and interdisciplinary research projects.

Scholarships – More than 100 scholarships are awarded to USF engineering students totaling more than \$150,000 to provide financial support and recognizing their exceptional efforts.

STUDENT ORGANIZATIONS

[Institute of Industrial Engineers](#)

[Engineers Without Borders](#)

[Engineers for Sustainable World](#)

[Student Chapter of the Florida Engineering Society](#)

[National Society of Black Engineers](#)

[Society of Hispanic Engineers](#)

[Society of Women Engineers](#)

[Tau Beta Pi The Engineering Honor Society](#)

[Theta Tau](#)



For more information
<http://outreachrequest.eng.usf.edu>
www.eng.usf.edu

UNIVERSITY OF SOUTH FLORIDA COLLEGE OF ENGINEERING

2011-12 CURRICULUM

BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING 128 hours

Department of Industrial and Management Systems Engineering Admissions Requirements

Transfer students must have completed the equivalent USF Engineering Calculus sequence with a 2.0 GPA; must have completed one year of equivalent USF General Physics and Chemistry courses with a minimum of 2.0 GPA; must have a USF and overall GPA of 2.0 or better.

The schedule that follows indicates how a diligent student who can devote full time to coursework can satisfy requirements in four academic years. Students without a solid foundation or those who cannot devote full time to academics should plan a slower pace. The following sequence is intended to facilitate registration planning and is subject to change based upon course availability. The sequence may also vary based upon individual considerations. Registration assistance will be provided by academic advisors.

FALL SEMESTER - YEAR 1

ENC 1101 Composition I	3
MAC 2281 Engineering Calculus I	4
CHM 2045 Chemistry I	3
CHM 2045L Chemistry I Lab	1
EGN 3000 Foundations of Engineering	1
FKL Social & Behavioral Science Elective	3

Total 15

SPRING SEMESTER - YEAR 1

ENC 1102 Composition II	3
MAC 2282 Engineering Calculus II	4
CHM 2046 Chemistry II	3
PHY 2048 Physics I	3
PHY 2048L Physics I Lab	1
FKL Humanities Elective	3

Total 17

FALL SEMESTER - YEAR 2

MAC 2283 Engineering Calculus III	4
PHY 2049 Physics II	3
PHY 2049L Physics II Lab	1
EGN 3443 Probability & Statistics for Engineers	3
FKL Humanities Elective	3

Total 14

SPRING SEMESTER - YEAR 2

EGN 3311 Statics	3
COP 2510 Programming Concepts (or COP 2270)	3
EGN 4450 Linear Systems	2
EGN 3433 Modeling & Analysis of Engineering Systems or MAP 2302 Differential Equations	3
FKL Fine Arts Elective	3

Total 14

SUMMER SEMESTER

EGS 1113 Engineering Graphics	3
EGN 3615 Engineering Economy with Social and Global Implications (SB)	3
FKL Human/Diversity & Global Elective	3

Total 9

FALL SEMESTER - YEAR 3

EGN 3365 Materials Engineering I	3
EGN 3373 Introduction to Electrical Systems I	3
EIN 4312C Work Analysis	3
EIN 4621 Manufacturing Processes	3
ESI 4312 Deterministic OR	3

Total 15

SPRING SEMESTER - YEAR 3

EGN 3343 Thermodynamics	3
EIN 4333 Production Control	3
ESI 4221 Industrial Statistics/Quality Control	3
ESI 4313 Probabilistic OR	3
Tech Elective Engineering Science	3

Total 15

FALL SEMESTER - YEAR 4

EIN 4364C Facilities Design	3
EIN 4352 Engineering Cost Analysis	3
ESI 4244 Design of Experiments	3
ESI 4523 Industrial Systems Simulation	3
Tech Elective Industrial Engineering	2

Total 14

SPRING SEMESTER - YEAR 4

EIN 4243C Human Factors (6A)	3
EIN 4891 Capstone Design (CD)	3
EIN 4601C Automation and Robotics	3
ENC 3246 Communication for Engineers (6A WI)	3
Tech Elective Industrial Engineering	3

Total 15

The minimum acceptable grade in each math, science and engineering course is a "C". A minimum 2.0 GPA in the following categories must be maintained at all times: Overall, USF, Math/Science, Engineering and Specialization.

Gordon Rule (6A) is fully met through the mathematics courses above, ENC 1101, ENC 1102, ENC 3246 and EIN 4243C. 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 Requirements (CD) and Writing Intensive (WI) exit requirements are met through ENC 3246 and EIN 4891.

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.