

BACHELOR OF SCIENCE (B.S.) MAJOR IN INDUSTRIAL ENGINEERING

**Minimum required: 129
semester credit hours**

Admission Requirements

- The Bachelor of Science (B.S.) degree with a major in Industrial Engineering requires admission to the university.
- In order to declare Industrial Engineering as a major, students must meet one of the following prerequisites:
 - ACT Math score of 24 or higher,
 - SAT Math score of 550 or higher, or
 - credit for one of the following math courses with a grade of "C" or higher:

Code	Title	Hours
MATH 1315	College Algebra	3
MATH 1317	Plane Trigonometry	3
MATH 1319	Mathematics for Business and Economics I	3
MATH 1329	Mathematics for Business and Economics II	3

General Requirements

- The general education core curriculum courses are listed in the degree plan below along with the statewide component code number. See the General Education Core Curriculum (<http://mycatalog.txstate.edu/undergraduate/general-education-core-curriculum/>) section of this catalog for the Texas State requirements and options in the core curriculum, including Honors courses.
- Students must complete a minimum of 36 advanced hours (3000 or 4000 level courses).
- Nine semester credit hours must be writing intensive (WI).
- Students entering Texas State with fewer than 16 credit hours completed after high school graduation will be required to take US 1100. All others will be exempt from taking this course.
- If two years of the same language are taken in high school, then no additional language hours will be required for the degree. In the absence of such high school language, two semesters of the same modern language must be taken at the college level.
- The Industrial Engineering major includes all the courses required for an Applied Mathematics minor.

Course Requirements

		Freshman	
		First Semester Hours	Second Semester Hours
CHEM 1335 (Life and Physical Sciences Component Code 030 [TCCN CHEM 1309 or 1409])	3	PHYS 1430 (Life and Physical Sciences Component Code 030 [TCCN PHYS 2425])	4
CHEM 1135 (TCCN CHEM 1109 [taken with TCCN CHEM 1309])	1	ENGR 2300	3

MATH 2471 (Mathematics Component Code 020 [TCCN MATH 2413])	4	MATH 2472 (Component Area Option Code 090/092 [TCCN MATH 2414])	4
ENG 1310 (Communication Component Code 010 [TCCN ENGL 1301])	3	Communication Component Code 010	3
ENGR 1304 (TCCN ENGR 1304)	3	American History Component Code 060	3
US 1100	1		
		15	17

Sophomore

First Semester Hours		Second Semester Hours	
PHYS 2425 (Component Area Option Code 090/094 [TCCN PHYS 1430])	4	CS 1342	3
MATH 3377	3	MATH 3323	3
MFGE 2332	3	ENGR 2301 (TCCN ENGR 2301)	3
POSI 2310 (Government/Political Science Component Code 070 [TCCN GOVT 2306])	3	ECO 2301 (Social and Behavioral Sciences Component Code 080 [TCCN ECON 1301])	3
American History Component Code 060	3	POSI 2320 (Government/Political Science Component Code 070 [TCCN GOVT 2305])	3
		Creative Arts Component Code 050 [HUMA 1315]	3
		16	18

Junior

First Semester Hours		Second Semester Hours	
ENGR 3311	3	MATH 2393 (TCCN MATH 2315)	3
ENGR 3315	3	IE 3330	3
ENGR 3373	3	IE 3340	3
IE 3320	3	IE 3360	3
PHIL 1305 or 1320 (Language, Philosophy, and Culture Component Code 040 [TCCN PHIL 1301 or PHIL 2306])	3	IE Elective ¹	3
		15	15

Senior

First Semester Hours		Second Semester Hours	
IE 4310	3	IE 4320	3
IE 4355	3	IE 4350	3
IE 4392	3	IE 4393	3
IE 4370	3	MFGE 4396	3
Math/Science Elective for Applied Math Minor or IE Elective ^{1,2}	3	IE Elective ¹	3
IE Elective ¹	3		
		18	15

Total Hours: 129

1

A minimum of nine (9) hours of advanced Industrial Engineering electives chosen from the list below are required.

2

A minimum of three (3) hours of approved Math/Science electives are required for IE student with applied math minor.

Advanced Industrial Engineering Electives

Code	Title	Hours
EE 3326	Numerical and Scientific Data Analysis Using Python	3
EE 4331	Introduction to Machine Learning for Engineering Applications	3
ENGR 3190	Cooperative Education	1
ENGR 3290	Advanced Cooperative Education	2
ENGR 4390	Internship	3
ENGR 4395	Independent Studies in Engineering	3
IE 3305	Introduction to Data Analysis	3
IE 4330	Reliability Engineering	3
IE 4335	Lean Six Sigma Methodologies	3
IE 4340	Optimization Techniques	3
IE 4360	Human Factors Design	3
IE 4381	Introduction to Systems Engineering	3
IE 4399D	Modern Heuristic Optimization Techniques	3
IE 4399F	Introduction to Data-Intensive Analysis and Simulation	3
MFGE 4367	Polymer Properties and Processing	3
EE 4392	Microelectronics Manufacturing I	3