INDUSTRIAL ENGINEERING - BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING

Requirements (121 credits)

In addition to the university requirements for graduation, a student must have at least a 2.0 grade-point average in all departmental courses.

Students must complete all University degree requirements, which include: General Education requirements, Viewing a Wider World requirements, and elective credits to total at least 121 credits with 48 credits in courses numbered 300 or above. Developmental coursework will not count towards the degree requirements and/or elective credits, but may be needed in order to take the necessary English and Mathematics coursework.

Prefix	Title	Credits
General Education		
Area I: Communications		
English Composition - Level 1		
ENGL 1110G	Composition I	4
or ENGL 1110H	Composition I Honors	
English Composition - Level 2		
ENGL 2210G	Professional and Technical Communication	3
or ENGL 2210H	Professional and Technical Communication	
Oral Communication		
COMM 1115G	Introduction to Communication	3
or HNRS 2175G	Introduction to Communication Honors	
Area II: Mathematics		
MATH 1511G	Calculus and Analytic Geometry I [1]	4
or MATH 1511H	Calculus and Analytic Geometry I Honors	
Area III/IV: Laboratory Sciences and Social/Behavioral Sciences		
CHEM 1215G	General Chemistry I Lecture and Laboratory for STEM Majors	4
PHYS 1310G & PHYS 1310L	Calculus -Based Physics I and Calculus -Based Physics I Lab	4
ECON 2110G	Macroeconomic Principles	3
or ECON 2110H	Principles of Macroeconomics Honors	
or ECON 2120G	Principles of Microeconomics Honors	
or ECON 2120H	Principles of Microeconomics Honors	
Area V: Humanities [2]		*3*
Area VI: Creative and Fine Arts [2]		*3*
General Education Elective		
MATH 1521G	Calculus and Analytic Geometry II	4
or MATH 1521H	Calculus and Analytic Geometry II Honors	
Viewing A Wider World [3]		**6**
Departmental/College Requirements		
Program Specific Requirements		
Mathematics		
MATH 1521G (or MATH 1521H) will count towards both the General Education Elective requirement and the Mathematics requirement for the department		
MATH 2530G	Calculus III	3
MATH 3160	Introduction to Ordinary Differential Equations	3
MATH 4230	Applied Linear Algebra	3
or MATH 2415	Introduction to Linear Algebra	
Natural Science Electives		*7-8*
CHEM 1225G	General Chemistry II Lecture and Laboratory for STEM Majors	
or PHYS 1320G/1320L	Calculus -Based Physics II	
Choose one from the following (3-4 credits):		
GEOL 1110G	Physical Geology	
BIOL 2110G	Principles of Biology: Cellular and Molecular Biology	
PHYS 2120	Heat, Light, and Sound	
Engineering Core		
ENGR 110	Introduction to Engineering Design	3
ENGR 190	Introduction to Engineering Mathematics	4
ENGR 233	Engineering Mechanics I	3
CHME 361	Engineering Materials	3
Capstone Course		
ENGR 401	Engineering Capstone I	3
ENGR 402	Engineering Capstone II	3
Industrial Engineering Topics Electives		
Choose three 3 credit Industrial Engineering topics courses, consisting of engineering and computer sciences and engineering design, and utilizing modern engineering tools: At least two courses must be numbered 300 and above [4]		9
Industrial Engineering		
I E 151	Computational Methods in Industrial Engineering	3
I E 217	Manufacturing Processes	3
I E 311	Engineering Data Analysis	3
I E 316	Methods Engineering	3
I E 351	Applied Problem Solving in Industrial Engineering	3
I E 365	Quality Control	3
I E 413	Engineering Operations Research I	3
I E 423	Engineering Operations Research II	3
I E 424	Manufacturing Systems	3
I E 451	Engineering Economy	3
I E 460	Evaluation of Engineering Data	3
I E 467	Discrete-Event Simulation Modeling	3
Second Language: (not required)		
Electives, to bring the total credits to 121		**0**
Total Credits		**121-122**

1. MATH 1511G (or MATH 1511H) is required for the degree but students may need to take any prerequisites needed to enter MATH 1511G (or MATH 1511H) first.
2. See the General Education (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/) section of the catalog for a full list of courses
3. See the Viewing a Wider World (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) section of the catalog for a full list of courses
4. Students are required to see the advisor for more detailed information about selecting the Industrial Engineering Topics Elective Courses that are approved to fulfill this requirement.

A Suggested Plan of Study for Students

This roadmap is a semester-by-semester planning guide for Industrial Engineering major. It assumes student placement in MATH 1511G

Calculus and Analytic Geometry I (or MATH 1511H) and ENGL 1110G Composition I (or ENGL 1110H). The contents and order of this roadmap may vary depending on initial student placement in Mathematics and English. It is only a suggested plan of study for students and is not intended as a contract. Course availability may vary from semester to semester and may be subject to modification or change. Roadmaps should be reviewed in consultation with your advisor.

First Year		
Fall		**Credits**
ENGL 1110G or ENGL 1110H	Composition I or Composition I Honors	4
MATH 1511G or MATH 1511H	Calculus and Analytic Geometry I [1] or Calculus and Analytic Geometry I Honors	4
CHEM 1215G	General Chemistry I Lecture and Laboratory for STEM Majors	4
ENGR 190	Introduction to Engineering Mathematics	4
	Credits	**16**
Spring		
MATH 1521G or MATH 1521H	Calculus and Analytic Geometry II or Calculus and Analytic Geometry II Honors	4
PHYS 1310G & PHYS 1310L	Calculus -Based Physics I and Calculus -Based Physics I Lab	4
I E 151	Computational Methods in Industrial Engineering	3
Area V: Humanities Course [2]		3
ENGR 110	Introduction to Engineering Design	3
	Credits	**17**
Second Year		
Fall		
Choose one from the following:		4
CHEM 1225G	General Chemistry II Lecture and Laboratory for STEM Majors	
PHYS 1320G & PHYS 1320L	Calculus -Based Physics II and Calculus -Based Physics II Lab	
MATH 2530G	Calculus III	3
ENGR 233	Engineering Mechanics I	3
ENGL 2210G or ENGL 2210H	Professional and Technical Communication or Professional and Technical Communication	3
Area VI: Creative and Fine Arts Course [2]		3
	Credits	**16**
Spring		
ECON 2110G or ECON 2110H or ECON 2120G or ECON 2120H	Macroeconomic Principles or Principles of Macroeconomics Honors or Principles of Microeconomics Honors or Principles of Microeconomics Honors	3
CHME 361	Engineering Materials	3
I E 217	Manufacturing Processes	3
I E 311	Engineering Data Analysis	3
COMM 1115G or HNRS 2175G	Introduction to Communication or Introduction to Communication Honors	3
	Credits	**15**
Third Year		
Fall		
MATH 3160	Introduction to Ordinary Differential Equations	3
I E 316	Methods Engineering	3
I E 351	Applied Problem Solving in Industrial Engineering	3
I E 365	Quality Control	3
I E 451	Engineering Economy	3
	Credits	**15**
Spring		
I E 423	Engineering Operations Research II	3
I E 424	Manufacturing Systems	3
I E 460	Evaluation of Engineering Data	3
MATH 4230 or MATH 2415	Applied Linear Algebra or Introduction to Linear Algebra	3
Industrial Engineering Topics Elective [3]		3
	Credits	**15**
Fourth Year		
Fall		
I E 413	Engineering Operations Research I	3
I E 467	Discrete-Event Simulation Modeling	3
ENGR 401	Engineering Capstone I	3
Choose one from the following:		3-4
BIOL 2110G	Principles of Biology: Cellular and Molecular Biology	
GEOL 1110G	Physical Geology	
PHYS 2120	Heat, Light, and Sound	
Viewing A Wider World Course [4]		3
	Credits	**15-16**
Spring		
Industrial Engineering Topics Elective [3]		6
ENGR 402	Engineering Capstone II	3
Viewing A Wider World Course [4]		3
	Credits	**12**
	Total Credits	**121-122**

1. MATH 1511G (or MATH 1511H) is the starting Math course for the degree but students may need to complete any prerequisites prior to enrolling in this course depending on math placement.
2. See the General Education (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/) Section of the catalog for a full list of courses.
3. See your adviser for more detailed information about selecting the Industrial Engineering Topics Elective Course that is approved to fulfill this requirement.
4. See the Viewing a Wider World (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) section of the catalog for a full list of courses