

MAJOR: INDUSTRIAL ENGINEERING, B.S.

INDUSTRIAL AND SYSTEMS ENGINEERING PROGRAM

The industrial and systems engineering program emphasizes the overall perspective of people and productivity in any type of system, including manufacturing, service, health care, transportation, communication, and agriculture. The educational objectives of the industrial engineering program are to produce graduates who are able to: 1. Solve industrial engineering problems by applying contemporary engineering tools to propose and implement effective solutions. 2. Design, develop, implement, and improve integrated systems that include people, materials, information, equipment, and energy. 3. Contribute as informed, ethical, and responsible members of the engineering profession and society as a whole. 4. Continue lifelong professional development throughout their career. 5. Collaborate and communicate effectively with others as a member or leader of an engineering or multidisciplinary team in an international setting.

TYPICAL PROGRAM OF STUDY			
FIRST YEAR			
FALL SEMESTER		SPRING SEMESTER	
WRIT 1120 College Writing	3 cr	CHEM 1151 General Chemistry I	5 cr
CS programming course ¹	3-5	IE 1225 Intro to Design and Manufacturing Engineering ³	4 cr
MATH 1296 Calculus I [^]		MATH 1297 Calculus II	
or MATH 1596 Honors Calculus I	5 cr	or MATH 1597 Honors Calculus II	5 cr
Liberal education requirement ²	<u>3 cr</u>	PHYS 2011 General Physics I	<u>4 cr</u>
	Total: 14-16cr		Total: 18 cr
SECOND YEAR			
ENGR 2015 Statics	3 cr	ENGR 2016 Mechanics of Materials	3 cr
ENGR 2110 Intro to Material Science for Engineers	3 cr	ENGR 2026 Dynamics	3 cr
MATH 3280 Differential Equations w/Linear Algebra	4 cr	ECE 2006 Electrical Circuit Analysis	4 cr
PHYS 2012 General Physics II	4 cr	STAT 3411 Engineering Statistics	3 cr
ECON 1022 Principles of Economics: Macro		Liberal education Category 8 option ⁴	<u>3 cr</u>
or ECON 1023 Principles of Economics: Macro	<u>3 cr</u>		Total: 16 cr
	Total: 17 cr		
THIRD YEAR			
IE 3115 Operations Research	4 cr	WRIT 3130 Advanced Writing: Engineering ⁵	3 cr
IE 3122 Materials Engineering lab	2 cr	IE 3222 Occupational Systems lab	2 cr
IE 3125 Engineering Economic Analysis	3 cr	IE 4010 Six Sigma Quality Control	3 cr
IE 3130 Materials Processing Engineering	3 cr	IE 4020 Lean Enterprises Management	3 cr
IE 3140 Human Factors & Ergonomic Design	<u>3 cr</u>	IE elective ⁶	3 cr
	Total: 15 cr	Liberal education ²	<u>3 cr</u>
			Total: 17 cr
FOURTH YEAR			
EMGT 4110 Engineering Professionalism & Practice	2 cr	IE 4255 Multidisciplinary Senior Design	4 cr
IE 4115 Facility Planning & Simulation	4 cr	IE 4993 Industrial Engineering Seminar	1 cr
IE 4222 Systems Integration lab	2 cr	IE elective ⁶	3 cr
IE 4230 Systems Integration	3 cr	IE technical elective ⁸	3-4 cr
COMM 1112 Public Speaking ⁷	3 cr	Liberal Education requirement ²	<u>3-4 cr</u>
IE technical elective ⁸	<u>3-4 cr</u>		Total: 14-16cr
	Total: 17-18cr		

[^]First math course is determined by math placement exam. This schedule presupposes placement into Math 1296.

¹ Students must choose one computer programming course from the following: CS 1121, CS 1131, CS 1511 or CS 2121.

² In addition to the above listed requirements, students must complete one course *each* from liberal education categories 7 and 9, and one additional course from *either* 9 or 10. Courses from categories 9 and 10 must have different course designators.

³ Students may take both ENGR 1210 and IE 2222 in place of IE 1225.

⁴ Students are required to take one of the following liberal education category 8 courses: ACCT 2005, LSBE 1101, BLAW 2001

⁵ Students may take WRIT 3150 or WRIT 3180 in place of WRIT 3130.

⁶ Take 2 courses (6 or more credits) of IE electives (list in the 2007-09 catalog.) Courses cannot be used to fulfill more than one requirement in the major.

⁷ Students may take PSY 1003 or ACCT 2001 or INTB 3201 in place of COMM 1112.

⁸ Take 6 or more credits of technical electives chosen from the following: IE 4495, IE 5305, IE 5315, IE 5325, IE 5335, SAFE 6002, SAFE 6051, ME 3111 or ChE 3111.

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MAJOR COURSE REQUIREMENTS	CREDITS	PREREQUISITES	SEMESTER TO BE COMPLETED	GRADE
FIRST YEAR				
WRIT 1120 College Writing	3			
CHEM 1151 General Chemistry I	5	HS chemistry, HS algebra		
CS programming course ¹	3-5			
IE 1225 Intro to Design and Manufacturing Engineering	4	MATH 1296 or 1596		
MATH 1296 Calculus I [^] or MATH 1596 Honors Calculus I	5	Math placement or MATH 1250 Placement		
MATH 1297 Calculus II or MATH 1597 Honors Calculus II	5	MATH 1290, 1296 or 1596 with C- or better MATH 1596		
Liberal education requirement ²				
PHYS 2011 General Physics I	4	MATH 1296 or 1596		
SECOND YEAR				
ECE 2006 Electrical Circuit Analysis	4	PHYS 2011, MATH 3280 (concurrent reg. OK)		
ECON 1022 Principles of Economics: Macro or ECON 1023 Principles of Economics: Macro	3	15 credits or department consent 15 credits or department consent		
ENGR 2015 Statics	3	MATH 1297, PHYS 2011		
ENGR 2110 Intro to Material Science for Engineers	3	CHEM 1151, ENGR 2015 (concurrent reg. OK)		
ENGR 2016 Mechanics of Materials	3	ENGR 2015, MATH 3280 (concurrent reg. OK)		
ENGR 2026 Dynamics	3	ENGR 2015, MATH 3280 (concurrent reg. OK)		
MATH 3280 Differential Equations w/Linear Algebra	4	MATH 1297 with a C- or better		
PHYS 2012 General Physics II	4	MATH 1297, PHYS 2012		
STAT 3411 Engineering Statistics	3	MATH 1297		
Liberal education Category 8 option ³	3			
THIRD YEAR				
WRIT 3130 Advanced Writing: Engineering ⁴	3	WRIT 1120, 60 credits		
IE 3115 Operations Research	4	MATH 3280, STAT 3411		
IE 3122 Materials Engineering lab	2	IE 2222		
IE 3125 Engineering Economic Analysis	3	BSIE or BMSE major, STAT 3411(concurrent OK)		
IE 3130 Materials Processing Engineering	3	ENGR 2110, 2016, STAT3411		
IE 3140 Human Factors & Ergonomic Design	3	ENGR 2026		
IE 3222 Occupational Systems lab	2	IE 3122, 3140, 4020 (concurrent reg. OK)		
IE 4010 Six Sigma Quality Control	3	STAT 3411		
IE 4020 Lean Enterprises Management	3	IE 2222		
IE elective ⁵	3			
Liberal education ²	3			
FOURTH YEAR				
COMM 1112 Public Speaking ⁶	3			
EMGT 4110 Engineering Professionalism & Practice	2	WRIT 31xx, Engineering major, w/in 2 semesters of grad		
IE 4115 Facility Planning & Simulation	4	IE 3255, 3265, BSIE candidate		
IE 4222 Systems Integration lab	2	IE 4230 (concurrent reg. OK)		
IE 4230 Systems Integration	3	IE 4020 or ME 3140, ECE 2006, CS course, BSIE		
IE 4255 Multidisciplinary Senior Design	4	EMGT 4110, BSIE		
IE 4993 Industrial Engineering Seminar	1	BSIE, BSME, BSChE, BSECE, or MEHS cand.		
IE elective ⁵	3			
IE technical elective ⁷	3-4			
IE technical elective ⁷	3-4			
Liberal Education requirement ²	3-4			

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³ Students may take both ENGR 1210 and IE 2222 in place of IE 1225.

⁴ Students are required to take one of the following liberal education category 8 courses: ACCT 2005, LSBE 1101, BLAW 2001

⁵ Students may take WRIT 3150 or WRIT 3180 in place of WRIT 3130.

⁶ Take 2 courses (6 or more credits) of IE electives (list in the 2007-09 catalog.) Courses cannot be used to fulfill more than one requirement in the major.

⁷ Students may take PSY 1003 or ACCT 2001 or INTB 3201 in place of COMM 1112.

⁸ Take 6 or more credits of technical electives chosen from the following: IE 4495, IE 5305, IE 5315, IE 5325, IE 5335, SAFE 6002, SAFE 6051, ME 3111 or ChE 3111.