Industrial Engineering Major, B.S.I.E.
International Engineering Program
Department of Mechanical and Industrial Engineering

Industrial Engineering integrates topics from manufacturing, management, and traditional design. Industrial engineers are proficient in the design, improvement, and management of complex systems of people, materials, equipment, and energy. They study and adapt product designs and the associated plant facilities to optimize production, while considering economic, technical, and human factors. The International Engineering track offers a unique opportunity to study engineering in another culture; space is limited. Courses are taught in English and opportunities for travel and externally-focused projects abound. The BSIE International Engineering program totals 130 credits.

Typical Program of Study:

Fall Semester

First Year

Comp 1120 College Writing	3 cr	
CS programming alternative[a]	3-5 cr	
Math 1296 Calculus I*	5 cr	
Literature/arts elective (Lib Ed category 9)	3 cr	
	14-16 cr	

Second Year

Engr 2015 Statics	3 cr	
IE 2105 Intro to Material Science	3 cr	
Math 3280 Diff Equations/Linear Algebra	4 cr	
Phys 2012 General Physics II	4 cr	
Literature/arts elective (Lib Ed cat 9 or 10)	3 cr	
	17 cr	

Third Year

Comp 31xx Advanced Writing	
or Comp 5220 Document Design & Graphics	
or Comp 5230 Web Pages, Appl/Presentation	3 cr
IE 3105 Human Factors	4 cr
IE 3115 Operations Research	4 cr
IE 3125 Engineering Economic Analysis	3 cr
IE 3135 Materials Processing	4 cr
	18 cr

Fourth Year (in Luleå, Sweden)

IE 4801 International Engineering Report	1 cr
IE 4803 Simulation of Swedish Manufacturing	3 cr
IE 4827 Manufacturing Systems Project	8 cr
Fst 1070 Intro to Scandinavia	3 cr
	15 cr

Spring Semester

First Year

Chem 1151 General Chemistry I	5 cr
Math 1297 Calculus II	5 cr
IE 1225 Intro to Engineering Design, Mfg	4 cr
Phys 2011 General Physics I	4 cr
	18 cr

Second Year

Econ 1023 Principles of Economics: Micro	
or Econ 1022 Principles of Economics: Macro	3 cr
Engr 2016 Mechanics of Materials	3 cr
Engr 2026 Dynamics	3 cr
ECE 2006 Electrical Circuit Analysis	4 cr
Stat 3611 Probability & Statistics	4 cr
	17 cr

Third Year

IE 3255 Statistical Quality Control	3 cr
IE 3265 Production & Operations Mgt	4 cr
ME 4145 CAD/CAM	4 cr
History/philosophy elective (Lib Ed category 7)	3 cr
	14 cr

Fourth Year

IE 4801 International Engineering Report	1 cr
IE 4812 CIM	4 cr
IE 4823 Proj Mgt & Swedish Ind Des Project	6 cr
IE 4870 Advanced Manufacturing Processes	4 cr
	15 cr

*First math course is determined by math placement exam. This schedule presupposes placement into Math 1296.

[a] Course options include CS 1121 Intro. to Programming in Visual BASIC, CS 1131 Intro. to Programming in FORTRAN, CS 1211 Intro to Programming in C, CS 1511 Computer Science I, or CS 2121 Intro to Programming in Java.

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Industrial Engineering Major, B.S.I.E. - International Engineering Program

2003-2005 Catalog

Major Course Requirements	Credits	Prerequisites	Semester to be Completed	Grade when Completed
Year 1				
IE 1225 Intro to Engineering Design, Mfg	4	Math 1296		
Chem 1151 General Chemistry I	5	High school chemistry and algebra		
CS programming course	3 to 5	3.5 years high school math		
Math 1296 Calculus I	5	Math placement test		
Math 1297 Calculus II	5	Math 1296		
Phys 2011 General Physics I	4	Math 1296		
Comp 1120 College Writing	3			
Literature/arts elective (category 9)	3			
Year 2				
IE 2105 Introduction to Material Science	3	Chem 1151		
ECE 2006 Electrical Circuit Analysis	4	Phys 2011; conc reg in Math 3280, Phys 2012		
Econ 1023 Micro **OR** Econ 1022 Macro	3			
Engr 2015 Statics	3	Math 1297; Phys 2011		
Engr 2016 Mechanics of Materials	3	Engr 2015; Math 3280		
Engr 2026 Dynamics	3	Engr 2015; Math 3280		
Math 3280 Diff Equations w/Lin Algebra	4	Math 1297		
Phys 2012 General Physics II	4	Phys 2011; Math 1297		
Stat 3611 Probability and Statistics	4	Math 1296		
Literature/arts elective (category 9 or 10)	3			
Year 3*				
IE 3105 Human Factors	4			
IE 3115 Operations Research	4	Math 3280; Stat 3611		
IE 3125 Engineering Economic Analysis	3	Stat 3611		
IE 3135 Manufacturing Processes I	4	IE 2105; Stat 3611		
IE 3255 Statistical Quality Control	3	Stat 3611		
IE 3265 Production & Operations Mgt	4	IE 3115, IE 3125		
ME 4145 CAD/CAM	4			
History/philosophy elective (category 7)	3			
Comp 3130 or 3150 Advanced Writing	3	Comp 1120; 60 credits		
OR Comp 5220 Doc Design & Graphics	3	Comp 1120; 60 credits		
OR Comp 5230 Web Pages, Appl/Pres	3	60 credits		
Year 4* in Lulea, Sweden				
IE 4801 International Engineering Report	2			
IE 4803 Simulation of Swedish Mfg	3			
IE 4812 CIM	4			
IE 4823 Proj Mgt & Swedish Ind Des Pr	6			
IE 4827 Manufacturing Systems Project	8			
IE 4870 Advanced Mfg Processes	4			
IntS 1070 Intro to Scandinavia	3			

*Admission to upper division IE program is competitive and based on performance in lower division courses.

Departmental Honors requires minimum 3.5 GPA, active participation in Tau Beta Pi and at least one professional society (ASME or IIE), and faculty nomination.