

INDUSTRIAL ENGINEERING
124-126 Semester Hours

LOWER DIVISION COURSES

FRESHMAN YEAR							
FALL			Cr	SPRING			Cr
*FST	101	Succeeding & Engaging at SIUE	1	ENG	102	English Composition II ³	3
IE	106	Engineering Problem Solving	3	MATH	152	Calculus II (BPS)	5
CHEM	131	Engineering Chemistry+(BPS)	4	PHYS	141	Physics I for Engr.+(BPS)	3
CHEM	135	Engineering Chemistry+ Lab(EL)	1	PHYS	151L	University Physics I Lab++ (EL)	1
ENG	101	English Composition I ¹	3	ACS	103	Interpersonal Communication Skills ⁴ (EUSC)	3
MATH	150	Calculus I ² (QR)	5				
			17				15
SOPHOMORE YEAR							
FALL			Cr	SPRING			Cr
CE	204	Engr. Graphics & CAD	3	CE	242	Mechanics of Solids	3
CE	240	Statics	3	CS	145+	Intro to Computing for Engr.	3
MATH	250	Calculus III (BPS)	4	ECE	210	Intro to Electric Circuits	3
PHYS	142	Physics II for Engr. ++ (BPS)	3	MATH	305 or 321	Differential Equations I or Linear Algebra I (BPS)	3
PHYS	152L	University Physics Lab II++ (EL)	1	ECON	111	Macroeconomics (BSS)	3
			14				15

+CS 140 is an acceptable substitute

Admission to upper-division courses requires satisfactory completion of lower-division core courses (see catalog for specific requirements). An "APPLICATION FOR ADMISSION TO UPPER-DIVISION ENGINEERING COURSES" form must also be completed and approved. This form is available online and in the Engineering Student Services Office.

UPPER DIVISION COURSES

JUNIOR YEAR							
FALL			Cr	SPRING			Cr
IE	335	Intro to Info Processing Systems	3	IE	415	OR – Deterministic Models	3
IE	345	Engineering Econ. Analysis	3	IE	451	Methods Design & Work Meas.	3
STAT	380	Stats for Applications (BICS)	3	IE	465	Design & Control of Quality System	3
IE	370	Manufacturing Processes	3	IE	470	Manufacturing Systems	3
IE	375	3-D Modeling in Product Design	3			Breadth-Life Science (BLS) ⁵	3
		Breadth Fine & Performing Arts (BFPA)	3			Health Experience (EH) ⁵	0/2
			18				15/17
SENIOR YEAR							
FALL			Cr	SPRING			Cr
IE	468	OR – Simulation	3	IE	490	Integrated Engineering Design	3
IE	476	Plantwide Process Control	3	IE	XXX	IE Elective II	3
IE	483	Production Planning & Control	3	IE	XXX	IE Elective III	3
IE	484	Facilities Planning	3	PHIL	323	Engineering, Ethics & Professionalism (BHUM) ⁶	3
IE	XXX	IE Elective I	3	IS	3XX	Interdisciplinary Studies (IS) ⁷ (EGC) ⁷ (EUSC) ⁷	3
			15				15

Declaration of Major: Students interested in any of the majors offered by the School of Engineering should seek advisement from the School of Engineering when they initially enroll in the University and should declare a major as soon as possible. Students admitted to programs offered by the School of Engineering shall have met University admission requirements, successfully completed any required academic development and high school deficiency courses, eligibility to enroll in MATH 125 – Pre-Calculus, and have a cumulative GPA of 2.0 or better in any completed University course work.

SEE REVERSE SIDE FOR ADDITIONAL INFORMATION.
FOR MORE INFORMATION CONTACT:
THE INDUSTRIAL ENGINEERING OFFICE: (618) 650-5589.

*FST 101 – for first time freshmen only. Must be taken in the first semester.

*CHEM 121A and CHEM 125A are acceptable substitutes in lieu of CHEM 131 and CHEM 135.

**Physics I for Engineering - co-requisites: MATH 152 and PHYS 151L. Prerequisites: ACT Math subscore of 28 or higher *or* high school physics grade of B or higher *or* Physics Readiness Exam Score 09 *or* PHYS 140.

**Physics II for Engineering - prerequisites: PHYS 141 with a grade of C or higher *or* PHYS 151 with a grade of C or higher; MATH 152 with a grade of C or higher; PHYS 151L with a grade of C or higher.

¹ENG 101 must be successfully completed within the First 30 Hours.

²Quantitative Reasoning (QR) 101 must be successfully completed within the First 60 Hours. MATH 150 successfully completed (with a grade of 'C' or better) will fulfill this requirement.

³ENG 102 must be successfully completed within the First 45 Hours.

⁴ACS 103 must be successfully completed within the First 30 Hours. ACS 103 can be used as a Foundations course, and will also fulfill the EUSC requirement. If ACS 101 is taken instead of ACS 103, the EUSC requirement will have to be met by another appropriate course.

⁵Students may be able to complete the Health Experience (EH) as an approved project or activity; if so, an additional course is not needed. (See academic advisor for approved project or activity). In addition, *BIOL 203 or *BIOL 205 will fulfill a BLS and EH requirement. *Prerequisite/s required courses.

⁶PHIL 323 will fulfill the RA 101 requirement.

⁷Interdisciplinary Studies (IS) Courses must be taken at the junior/senior level class standing. This requirement is not waived with completion of transfer associate degree or IAI-GECC. It is recommended that students choose a course to meet this general education requirement and Global Cultures (EGC). Selecting one of the following: IS 324, 326, 336, 340, 352, 353, 363, 375, 377, 400 or 401 will satisfy both the requirement of an IS course and the GLOBAL CULTURES (GC) requirements. In addition, IS 352 and 375 will fulfill the EGC, EUSC and IS requirements. If a course is not selected that meets two general education requirements, then a course from the list of GC courses must also be taken.

Enrollment in Upper-Division IE Courses:

The requirements for enrollment in upper-division IE courses are: satisfactory completion of all university and School of Engineering admission requirements; satisfactory completion of English, speech, chemistry, mathematics, and physics courses shown in the first two years of the program with a GPA of 2.0 for non-transfer students, transfer students from articulated programs, and Illinois resident transfer students (2.25 for other transfer students); a GPA of 2.0 or better in CS 140, CE 204, CE 240, ECE 210, and CE 242 (both original and repeat grades are computed in the GPA); and an approved application for enrollment in upper-division engineering courses.

INDUSTRIAL ENGINEERING ELECTIVES

Not all elective courses are offered every year. The courses to be offered are selected from the list below on the basis of student demand and faculty availability. Elective courses have 1.5 hours of design as a minimum.

Three required electives must come from the following list, with at least two electives from the IE classification:

Approved List of IE Electives			Cr.	FALL	SPRING	SUMMER
IE	401	Biomechanics	3	X		
IE	427	Knowledge-Based Systems	3		X	X
IE	430	Managing Engineering and Technology	3			X
IE	431	Project Analysis and Control	3			X
IE	445	Foundations of Financial Engineering	3	X		
IE	458	Human Factors Engineering	3	X		
IE	461	OR – Stochastic Models	3		X	
IE	462	Six Sigma, Quality and Process Improvement	3	X		
IE	463	Reliability Engineering	3	X		
IE	464	Design of Experiments with Applications	3		X	
IE	466	Engineering Metrology	3	X		
IE	467	Total Quality and Taguchi Methods	3		X	
IE	475	CAD/CAM/CAE	3		X	
IE	477	Computer Integrated Mfg. Systems	3		X	
IE	478	Industrial Robotics	3		X	X
IE	480	Tool Engineering	3	X		
IE	482	Manufacturing Engineering Design	3		X	
IE	488	Lean Production	3		X	

For all other approved technical electives, please see the program director for details as these tend to change from time to time.

**For the Manufacturing Engineering specialization, please choose three electives from the following list of courses. Other

EVENING AND SECOND COURSE OFFERINGS

IE courses are offered during either the Fall or Spring Semester as shown on the reverse side of this page. Additional offerings of many IE courses are available as shown below. (The department reserves the right to cancel these offerings because of lack of student demand or faculty availability.)

Courses with Evening Offerings			Cr.	FALL	SPRING	SUMMER
CE	204	Engineering Graphics & CAD	3	X	X	X
CE	240	Statics	3	X	X	X
CE	242	Mechanics of Solids	3	X	X	X
ECE	210	Introduction to Electric Circuits	3	X	X	X
IE	345	Engineering Economic Analysis	3	X	X	X
IE	375	3-D Modeling in Product Design	3	X	X	
IE	427	Knowledge-Based Systems	3		X	X
IE	430	Engineering Management	3			X
IE	458	Human Factors Engineering	3	X		
ME	262	Dynamics	3	X	X	X

Minor Requirements:

21 hours are required, including IE 345, 370, 415, 451 and STAT 380. The remaining two courses are electives to be selected from the following four courses: IE 458, 468, 483 and 484. Other substitute electives are subject to approval by the Program Director of Industrial and Manufacturing Engineering.

Manufacturing Specialization Requirements:

3 Electives from the following list of IE courses: IE 466; IE 467; IE 475; IE 480; IE 482. Other substitute electives (Industrial Robotics, Biomechanics; etc. are subject to approval by the Industrial Engineering Chair/Program Director.

University Requirements (Non-General Education)

- Bachelor of Science Degree Requires completion of 8 lecture courses in life (BLS* or LS*), physical (BPS* or PS*) or social science (BSS* or SS*) including 2 with labs (EL*)
- Minimum of 120 semester hours must be completed.
- Minimum GPA of 2.0 must be achieved.