

Industrial & Systems Engineering Undergraduate Technical Electives List (Revised 8/8/16)

Complete a minimum of 37 credits, including AT LEAST one course from EACH of the following 5 categories:

A. Operations Research:

- IND E 412 [4cr] Methods of Operations Research [pr: IND E 411]
- IND E 424 [4cr] Simulation [pr: IND E 337 & 411; 411 may be taken concurrently]

B. Stats:

- IND E 321 [4cr] Statistical Quality Control [pr: IND E 315]
- IND E 426 [4cr] Reliability Engineering & System Safety [pr: IND E 315]

C. Production/Operations:

- IND E 430 [4cr] Manufacturing Scheduling & Inventory [pr: IND E 337 & 410; both of which may be taken concurrently]
- IND E 439 [4cr] Plant Layout & Material Handling [pr: IND E 410; which may be taken concurrently]

D. Design:

- IND E 351 [4cr] Human Factors
- IND E 455 [4cr] User Interface Design

E. General Engineering:

- A A 260 [4cr] Thermodynamics [pr: CHEM 142, MATH 126, PHYS 121]
- CSE 143 [5cr] Computer Programming for Engineers II [pr: CSE 142]

Additional technical elective courses may be chosen from the list below to reach the minimum 37 credits.

Use the "Request for a Technical Elective Course" to request approval of a course not included below.

Course	No.	Title	Cr.
A A	260	Thermodynamics	4
AMATH	301	Beg Sci Computing	4
AMATH	383	Introduction to Modeling	3
AMATH	401	Vector Calculus	4
AMATH	402	Intro to Dynamics Systems & Chaos	4
BIOEN	504	Intro to Technology Commercialization	4
BSE	309	Creativity and Innovation	2
CHEM	237	Organic Chemistry	4
CHEM	238	Organic Chemistry	4
CHEME	325	Energy & Entropy	4
CHEME	355	Biological Frameworks for Engineers	3
CEE	307	Construction Engineering	3
CEE	337	Construction Materials	5
CEE	357	Environmental Engineering	5
CEE	410	Traffic Engineering Fund & Surveys	3
CEE	493	Air-Pollution Source Testing/Equip. Eval.	3
CEE	494	Air-Pollution Control Equip., Design	3
CFRM	460	Mathematical Methods for Quantitative Finance	3
CSE	143	Computer Prog. for Engineers II	5
CSE	154	Web Programming	5
CSE	373	Data Structures and Algorithms	4
CSE	374	Intermediate Programming Concepts & Tools	3
CSE	410	Computer Systems	3
CSE	415	Intro to Artificial Intelligence	3
EE	233	Circuit Theory	5
EE	235	Continuous Time Linear Systems	5
EE	271	Digital Circuits & Systems	5
EE	341	Discrete Time Linear Systems	5
EE	415	Comp.-Aided System Analysis & Design	3
EE	457	Electric Energy Distribution Systems	4
EE	482	Semi-conductor Materials & Devices	4
ENGR	100	Intro to Engr Design (only if taken as Frosh/Soph)	5
ENGR	499	Honors	3
ESRM	320	Intro to Marketing and Human Resources	5
ESRM	321	Intro to Finance and Accounting	5
ESS	472	Rockets & Instrumentation	2
IND E	321	Statistical Quality Control	4
IND E	351	Human Factors	4
IND E	412	Methods of Operations Research	4

Course	No.	Title	Cr.
IND E	424	Simulation	4
IND E	426	Reliability	4
IND E	430	Scheduling and Inventory	4
IND E	439	Plant Layout & Material Handling	4
IND E	455	User Interface Design	4
IND E	470	Systems Engineering	4
IND E	496	Entrepreneurship	4
IND E	498	Special Topics in Industrial Engineering	var
IND E	499	Special Projects (9 credits max)	var
IND E	5xx	All IND E Graduate Level Courses	var
I S	300	Intro to Information Systems	5
I S	455	Database Management	4
MATH	309	Linear Analysis	3
MATH	324	Advanced Calculus 1	3
MATH	327	Intro to Real Analysis 1	3
MATH	394	Probability 1	3
MATH	395	Probability 2	3
MATH	396	Probability 3	3
MATH	407	Linear Optimization	3
MATH	408	Nonlinear Optimization	3
MATH	409	Discrete Optimization	3
MATH	491	Intro to Stochastic Processes	3
MATH	492	Stochastic Processes in Option Pricing	3
ME	354	Mechanics of Materials Lab	5
ME	355	Manufacturing Processes	4
ME	373	Intro to Systems Dynamics	5
ME	374	Systems Dynamic Analy. & Design	5
ME	409	IntroNum. Control/Comp.Aid. Mfg	3
ME	480	Intro to Computer-Aided Technology	4
MGMT	401	Leadership, Critical Thinking, & Decision Making	4
MGMT	402	Deal-Making and Negotiations	4
MGMT	403	Motivating High Performance	4
N SCI	301	Naval Ship Systems I	3
N SCI	302	Naval Ship Systems II	3
N SCI	303	Naval Weapon Systems	3
OPMGT	443	Inventory/Supply Chain Management	4
OPMGT	450	Introduction to Project Management	4
Q METH	450	Spreadsheet Models	4
OPMGT	443	Inventory/Materials Management	4