

**INDUSTRIAL AND SYSTEMS ENGINEERING
DEGREE REQUIREMENTS
revised for Fall 2017**

Freshman Year (31.5 semester credits)		
<u>Fall</u>		
ECON 1030	Princ of Microeconomics	3
ET 1100	Eng Graphics Fundamentals	2
ISE 1100	Intro to ISE	3
MATH 2301	Calculus I	4
COMS 1030 or THAR 1130	Fund of Public Speaking or Acting Fundamentals I	3

Sophomore Year (32/33 semester credits)		
<u>Fall</u>		
ET 3300	Engineering Economy	2
ISE 2100	Data Mgmt & Display	3
ISE 3200	Engineering Statistics	3
MATH 3200	Applied Linear Algebra	3
PHYS 2051	Physics I	5

<u>Spring</u>		
CHEM 1210/1510	Chemistry I	4
ENG 1510	Writing and Rhetoric I	3
ET 1500	Career Orientation	0.5
MATH 2302	Calculus II	4
PHIL 1300	Intro to Ethics	3
	Tier II Elect. – Cross-Cultural	2

<u>Spring</u>		
ISE 3210	Engineering Probability	3
ISE 3340	Work Design	3
PHYS 2052	Physics II	5
ETM 3030	Appl of Obj-Oriented Prog	3
or ET 2100	Programming in C	or 4
	Tier II Elect. – Fine Arts	2

Junior Year (31 semester credits)		
<u>Fall</u>		
ISE 4120	Inventory & Mfg. Control I	3
ISE 4140	Operations Research	3
PSY 1010	General Psychology	3
	Engineering Science Elective	2
	ISE/PCA Elective	2
	Math/Science Elective	3

Senior Year (32 semester credits)		
<u>Fall</u>		
ISE 4130	Computer Simulation	3
ISE 4160	Six Sigma	3
ISE 4490	Project Management	2
	Engineering Science Elective	3
	ISE/PCA Elective	3
	ISE/PCA Elective	3

<u>Spring</u>		
ISE 4150	Information Systems Engr	3
ISE 4170	Lean Manuf. & Service Syst.	3
	Business Elective	3
	Engineering Science Elective	3
	ISE/PCA Elective	3

<u>Spring</u>		
ISE 4192	Senior Capstone II	6
	Business Elective	3
	ISE/PCA Elective	3
	Math/Science Elective	3

ELECTIVE CATEGORIES

- **Math/Science:** 2 classes
- **Business:** 2 classes
- **ISE Electives:** 5 semester credits
- **Eng. Science:** 6 semester credits
- **Prof. Concentration:** 11 semester credits

Math/Science Electives	
Course	Title (Credits)
BIOS 1030	Human Biology Basic Princ. (3)
CHEM 1220	Principles of Chemistry II (4)
CHEM 1520	Fundamentals of Chem. II (4)
MATH 3050	Discrete Mathematics (3)
MATH 3300	Calculus III (4)
MATH 3320	Vector Analysis (3)
MATH 3400	Differential Equations (3)
MATH 4630	Discrete Modeling & Opt. (3)

Business Electives	
Course	Title (Credits)
ACCT 1010	Foundations of Accounting (3)
BUSL 2000	Law and Society (3)
ECON 1040	Macroeconomics (3)
MGT 2000	Intro to Management (3)
MGT 3550	Creativity and Innovation Management(3)
MKT 2020	Marketing Principles (3)

ISE Electives

Any non-required ISE 4000-level course, or any course found in a Professional Concentration Area (other than the PCA that the student is pursuing) can be counted as an ISE elective. Because PCA courses can be used to satisfy this category, non-engineering courses may be counted toward ISE electives. However, students must accumulate a minimum of 10 semester credits of engineering courses across ISE and PCA electives.

Engineering Science Electives

Course	Title (Credits)
ET 2200	Statics (3)
ET 2220	Strength of Materials (3)
ET 2300	Principles of Engr Materials (3)
ET 2240	Dynamics
ET 3132	Basic Electrical Engr I (2)
ET 3200	Engr Thermodynamics (3)

Course	Title (Credits)
CE 3530	Basics of Environ Engr (3)
EE 3051	Basic Electrical Laboratory (1)
EE 3143	Basic Electrical Engr II (3)
ME 3022	Heat and Fluid Transport I (3)

Professional Concentration Area Electives

Suggested course groupings are shown below. Additional areas are possible and can be designed by the student in consultation with his/her advisor.

General IE (11 semester credits)	
Course	Title (Credits)
ISE 4300	Intro to Designed Expts. (2)
ISE 4360	Facility Planning & Design (3)
ISE 4380	Human Factors Engineering (3)
ETM 3070	Mfg Design and Lab (3)

Manufacturing (12 semester credits)	
Course	Title (Credits)
ISE 4360	Facility Planning & Design (3)
ISE 4370	Manufacturing Systems (3)
ISE 4375	Computer Integrated Mfg (3)
ETM 3070	Mfg Design and Lab (3)

Supply Chain Mgmt. (12 semester credits)	
Course	Title (Credits)
ISE 4360	Facility Planning & Design (3)
ISE 4365	Material Handling Systems (3)
ISE 4380	Human Factors Engineering (3)
MKT 4040 or MKT 4250	Logist & Supp Chain Mgt (3) or Business-to-Business Mkt (3)

Information Syst (12 or 13 semester credits)	
Course	Title (Credits)
ISE 4350	Database Info Systems (3)
ISE 4930	Special Investigations (3)
ET 2100 or ETM 3030	Programming in C (4) or Appl of Obj-Oriented Prog (3)
ETM 3540	Auto ID and Data Capture (3)

Health Care (11 or 12 semester credits)	
Course	Title (Credits)
ISE 4360	Facility Planning & Design (3)
ISE 4320 or ISE 4365	Inventory and Mfg Ctrl II (2) or Material Handling Syst (3)
HLTH 2170	Health System Organization, Financing, and Delivery (3)
HLTH 3350 or 3400	Mgmt of Hlth Care Org (3) or Problems in Hlth Care Org (3)

Human Factors (11 semester credits)	
Course	Title (Credits)
ISE 4300	Intro to Designed Expts. (2)
ISE 4380	Human Factors Engineering (3)
EH 2000	Intro Env Hlth & Safety (3)
BIOS 2030 or EH 4400 or ME 4670	Human Biology II (3) or Occup. Safety & Hlth (3) or Engr Biomechanics (3)

Facility Planning & Design (12 sem. credits)	
Course	Title (Credits)
CE 4160	Construction Estim. & Eqpt. (3)
CE 4170	Proj.Planning and Sched. (3)
CE 4190	Proj. Devel., Contr. & Law (3)
ISE 4360	Facility Planning & Design (3)

Sustainability (12 semester credits)	
Course	Title (Credits)
CE 3530	Basics of Enviro. Engr. (3)
CE 4540	Sustainable Construction (3)
2 of the following	
BIOS 2750	Ecology in the 21st Century (3)
CE 4530	Solid & Haz. Waste Mgt. (3)
ECON 3130	Economics of the Environ. (3)
ECON 3140	Natural Resource Econ. (3)
EH 2000	Intro Env Hlth & Safety (3)
ME 4350	Energy Engineering & Mgt. (3)