

INDUSTRIAL AND SYSTEMS ENGINEERING - Class of 2019

Total Credits = **122**

Freshman Year *Fall* Semester

Course Code	Description	Cr	
CHM 101	General Chemistry I Lec [GE-N]	3	
CHM 102	General Chemistry I Lab	1	
EGR 105	Foundations of Engineering I	1	
MTH 141	Intro Calculus w/Analytic Geom [GE-MQ]	4	
	General Education Elective*	3	
	General Education Elective*	3	

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Freshman Year *Spring* Semester

Course Code	Description	Cr	
ECN 201	Principles of Microeconomics [GE-S]	3	
EGR 106	Foundations of Engineering II	2	
MTH 142	Intermed Calc with Analytic Geom [GE-MQ]	4	
PHY 203	Elementary Physics I Lect [GE-N]	3	
PHY 273	Elementary Physics I Lab [GE-N]	1	
	General Education Elective*	3	

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Sophomore Year *Fall* Semester

Course Code	Description	Cr	
ISE 240 and 241 or ISE 220 and MCE 201	Mfg Processes and Systems (3), Mfg Processes and Systems Lab (1) ----- Indust and Systems Engrg Seminar (1) Engineering Graphics (3)	4	
MCE 262	Statics	3	
MTH 243	Calculus for Functions of Several Vars	3	
PHY 204	Elementary Physics II Lec [GE-N]	3	
PHY 274	Elementary Physics II Lab [GE-N]	1	

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Sophomore Year *Spring* Semester

Course Code	Description	Cr	
CVE 220	Mechanics of Materials	3	
ISE 240 and 241 or ISE 220 and MCE 201	Mfg Processes and Systems (3), Mfg Processes and Systems Lab (1) ----- Indust and Systems Engrg Seminar (1) Engineering Graphics (3)	4	
MCE 263	Dynamics	3	
MTH 362 or MTH 244	Advanced Engineering Mathematics I or Differential Equations	3	
PHY 205	Elementary Physics III Lec [GE-N]	3	
PHY 275	Elementary Physics III Lab [GE-N]	1	

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Junior Year *Fall* Semester

Course Code	Description	Cr	
CHE 333	Engineering Materials	3	
EGR 316 or PHL 212	Engineering Ethics or Ethics [GE-L]	3	
ISE 325	Computer Tools for Engineers	3	
ISE 411	Probability and Statistics for Engineers	3	
ISE 432	Deterministic Systems	3	

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Junior Year *Spring* Semester

Course Code	Description	Cr	
BUS 201	Financial Accounting	3	
ELE 220	Passive and Active Circuits	3	
ISE 404	Engineering Economy and Proj Planning	3	
ISE 412	Statistical Methods and Quality Systems	3	
ISE 433	Stochastic Systems	3	

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Senior Year *Fall* Semester

Course Code	Description	Cr	
ISE 401	ISE Capstone Design I	3	
ISE 451	Production System Design	3	
	Professional Elective**	3	
	Professional Elective**	3	
	Free Elective	3	

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Senior Year *Spring* Semester

Course Code	Description	Cr	
ISE 402	ISE Capstone Design II	3	
	Professional Elective**	3	
	Professional Elective**	3	
	Professional Elective**	3	
	General Education Elective*	3	

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* **Note:** Refer to *specific* Industrial and Systems Engineering General Education *course requirements* (see 2019 ISE Check Sheet).

** **Professional Electives:** Must be satisfied by *fifteen (15) credits* of professional electives, *at least six (6)* of which must be 400- or 500-level ISE courses not required by the ISE major. The *remaining courses* may be any 300-, 400-, or 500- level courses offered by the College of Engineering not required by the ISE major, CSC, MTH, or PHY (*except* CHE 328, 351, 352; CSC 320; MTH 381, 420, 451, 452; PHY 322, 381, 382; courses in professional practice; seminars); BUS 315, 316, 320, 341, 344, 365, 420, 444, 450; ECN 323, 324, 327, 328, 344, 363, 368, 376; STA 412 or any 500-level STA courses (except STA 532); MBA 530, 550.

SPECIFIED MATHEMATICS, SCIENCE, AND ENGINEERING COURSES											
INTRODUCTORY ENGINEERING						ENGINEERING SCIENCE AND DESIGN					
Sem	Course	Cr	Grade	QP	Note	Sem	Course	Cr	Grade	QP	Note
	EGR 105	1					CHE 333	3			
	EGR 106	2					CVE 220	3			
		3					ELE 220	3			
MATHEMATICS							ISE 220**	1			
	MTH 141 [GE-MQ]	4					ISE 240	3			
	MTH 142 [GE-MQ]	4					ISE 241	1			
	MTH 243	3					ISE 325	3			
	MTH 244 <i>or</i> 362	3					ISE 401 [capstone]	3			
							ISE 402 [capstone]	3			
		14					ISE 404	3			
NATURAL SCIENCES							ISE 411	3			
	CHM 101 [GE-N]	3					ISE 412	3			
	CHM 102	1					ISE 432	3			
	PHY 203 [GE-N]	3					ISE 433	3			
	PHY 273 [GE-N]	1					ISE 451	3			
	PHY 204 [GE-N]	3					MCE 201	3			
	PHY 274 [GE-N]	1					MCE 262	3			
	PHY 205 [GE-N]	3					MCE 263	3			
	PHY 275 [GE-N]	1						50			
						*PROFESSIONAL ELECTIVES					
								3			
								3			
								3			
								3			
								3			
		16						3			
BUSINESS											
	BUS 201	3						15			
GENERAL EDUCATION [GE] COURSES											
BREADTH At least one course in <i>each</i> of the Gen Ed Areas						DEPTH At least one additional course in 3 <i>different</i> Gen Ed Areas Remainder are taken in <i>any</i> Gen Ed Area/Area					
Sem	Course	Cr	Grade	QP	Note	Sem	Course	Cr	Grade	QP	Note
***English Communication-Writing [GE-ECw]						Natural Sciences [GE-N]					
	WRT	3				✓	<i>Satisfied by Required Courses</i>	12	---	---	---
Mathematical and Quantitative Reasoning [GE-MQ]						Mathematical and Quantitative Reasoning [GE-MQ]					
✓	<i>Satisfied by</i> MTH 141	4	---	---	---	✓	<i>Satisfied by</i> MTH 142	4	---	---	---
Fine Arts & Literature [GE-A]						***One additional course from: EC/ECw; A; FC; L; S					
		3					[GE-EC/ECw; A; FC; L; S]	3			
Foreign Language/Culture [GE-FC]						Free Elective					
		3						3			
Letters [GE-L]						Other Courses (<i>not for degree credit</i>)					
	EGR 316 <i>or</i> PHL 212	3									
Natural Sciences [GE-N]											
✓	<i>Satisfied by</i> CHM 101	3	---	---	---						
Social Sciences [GE-S]											
	ECN 201	3									

* **Professional Electives:** Must be satisfied by **fifteen (15) credits** of professional electives, **at least six (6)** of which must be 400- or 500-level ISE courses not required by the ISE major. The **remaining courses** may be any 300-, 400-, or 500- level courses offered by the College of Engineering not required by the ISE major, CSC, MTH, or PHY (**except** CHE 328, 351, 352; CSC 320; MTH 381, 420, 451, 452; PHY 322, 381, 382; courses in professional practice; seminars); BUS 315, 316, 320, 341, 344, 365, 420, 444, 450; ECN 323, 324, 327, 328, 344, 363, 368, 376; STA 412 or any 500-level STA courses (except STA 532); MBA 530, 550.

Note: Only ISE 513 or STA 513 will be allowed – not both (these are cross-listed courses).

** ISE 220 can be taken in either the freshman, sophomore, or junior year.

*** **Note the following specific requirements and restrictions for General Education [GE] electives:**

-[GE-ECw] **Must** take at least **one (1)** General Education course in **writing** [GE-ECw].

-[GE-ECw] Can only take **one (1)** of the following **100-level** writing courses for General Education credit [GE-ECw]: WRT 104, or WRT 106.

-Recommend ECN 202 [GE-S] as a General Education Elective choice.