

INDUSTRIAL AND SYSTEMS ENGINEERING (GIEP) - CLASS OF 2020

Freshman Year Fall Semester

Course Code	Description	Cr	
CHM 101	General Chemistry Lec I (A1)	3	
CHM 102	General Chemistry I Lab	1	
EGR 105	Foundations of Engineering I (A4)	1	
MTH 141	Intro Calculus with Analytical Geometry (A1, B3)	4	
	General Education Outcome(s)	3	
GER 111	Intensive Beginning German I	4	
		16	

Freshman Year Spring Semester

Course Code	Description	Cr	
EGR 106	Foundations of Engineering II (A4)	2	
MTH 142	Intermed Calc with Analytic Geom (B3)	4	
PHY 203	Elementary Physics I (A1)	3	
PHY 273	Elementary Physics Lab I (A1)	1	
	General Education Outcome(s)	3	
GER 112	Intensive Beginning German II	4	
		17	

Sophomore Year Fall Semester

Course Code	Description	Cr	
ISE 240/241 or ISE 220 and MCE 201	Mfg Processes and Systems (3), Mfg Processes and Systems Lab (1) ----- Introduction to Systems Engineering (1), Engineering Graphics (3)	4	
MCE 262	Statics	3	
MTH 243	Calculus for Funcs. of Sev. Vars. (A1, B3)	3	
PHY 204	Elementary Physics II (A1)	3	
PHY 274	Elementary Physics Lab II (A1)	1	
GER 113	Intensive Intermediate German I	4	
		18	

Sophomore Year Spring Semester

Course Code	Description	Cr	
CVE 220	Mechanics of Materials	3	
ISE 240/241 or ISE 220 and MCE 201	Mfg Processes and Systems (3), Mfg Processes and Systems Lab (1) ----- Introduction to Systems Engineering (1), Engineering Graphics (3)	4	
MCE 263	Dynamics	3	
MTH 362 or MTH 244	Advanced Engineering Mathematics I or Differential Equations	3	
	Science Elective**	3	
GER 104	Intermediate German II	3	
		19	

Junior Year Fall Semester

Course Code	Description	Cr	
BUS 201	Financial Accounting	3	
CHE 333	Engineering Materials	3	
ISE 311	Probability and Statistics for Engineers	3	
ISE 325	Computer Tools for Engineers	3	
ISE 332	Deterministic Systems	3	
GER 205	Conversation and Composition	3	
		18	

Junior Year Spring Semester

Course Code	Description	Cr	
ELE 220	Passive and Active Circuits	3	
ISE 304	Engineering Economy and Proj Planning	3	
ISE 312	Statistical Methods and Quality Systems	3	
ISE 333	Stochastic Systems	3	
	General Education Outcome(s)	3	
GER 206	Conversation and Composition	3	
		18	

Semester Abroad

Course Code	Description	Cr	
GER/EGR 411	Technical German/Professional Elective	3	
GER 3XX		4	
GER 3XX or GER 4XX		3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
		16	

International Internship Semester

Course Code	Description	Cr	
GER 315-316	Language Study Abroad	3-6	
		3-6	

Senior Year Fall Semester

Course Code	Description	Cr	
ISE 401	ISE Capstone Design I	3	
ISE 420	Intro to Human Factors and Ergonomics	3	
ISE 451	Production System Design	3	
PHL 212	Ethics (A3, C3)	3	
	Approved Professional Elective***	3	
GER 4XX		3	
		18	

Senior Year Spring Semester

Course Code	Description	Cr	
ISE 402	ISE Capstone Design II	3	
	Approved Professional Elective***	3	
	Approved Professional Elective***	3	
	Approved Professional Elective***	3	
	General Education Outcome(s)*	3	
GER 4XX		3	
		18	

Specified Math, Science, and Engineering Courses

Introductory Engineering					
Sem	Course	Cr	Grade	QP	Note
	EGR 105 (A4)	1			
	EGR 106 (A4)	2			
		3			

Mathematics					
Sem	Course	Cr	Grade	QP	Note
	MTH 141 (A1 & B3)	4			
	MTH 142 (B3)	4			
	MTH 243	3			
	MTH 362 or 244	3			
		14			

Natural Sciences					
Sem	Course	Cr	Grade	QP	Note
	CHM 101 (A1)	3			
	CHM 102	1			
	PHY 203 (A1)	3			
	PHY 273 (A1)	1			
	PHY 204 (A1)	3			
	PHY 274 (A1)	1			
		12			

**Science Elective					
Sem	Course	Cr	Grade	QP	Note
		3			
		3			

Business					
Sem	Course	Cr	Grade	QP	Note
	BUS 201	3			
		3			

Engineering Science and Design (Major)					
Sem	Course	Cr	Grade	QP	Note
	CHE 333	3			
	CVE 220	3			
	ELE 220	3			
	ISE 220****	1			
	ISE 240	3			
	ISE 241	1			
	ISE 304	3			
	ISE 311	3			
	ISE 312	3			
	ISE 325	3			
	ISE 332	3			
	ISE 333	3			
	ISE 401 [capstone]	3			
	ISE 402 [capstone]	3			
	ISE 420	3			
	ISE 451	3			
	MCE 201	3			
	MCE 262	3			
	MCE 263	3			
		53			

***Professional Elective					
Sem	Course	Cr	Grade	QP	Note
		3			
		3			
		3			
		3			
		3			
		15			

***General Education Outcomes:** at least 40 credits must be completed. (A1-D1) must be met by at least three credits. A single course may satisfy one or two outcomes, and at least one course must be a "Grand Challenge". No more than twelve credits can be from the same course code except HPR (ie: only four 3-credit GER classes OR three 4-credit GER classes may be used to fulfill General Education Outcomes). General education courses may also be used to meet requirements of your major(s) or minor(s) when appropriate.

****Science Elective:** choose from CHM 112, CHM 124, KIN 122, NRS 100 or PHY 205/275

*****Professional Electives:** Must be satisfied by **fifteen (15) credits** of professional electives, **at least six (6)** of which be 400- or 500-level 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 428, 451, 452; CSC 320; MTH 381, 420, 451, 452; PHY 322, 381, 382; courses in professional practice; seminars); BUS 320, 341, 344, 355, 365, 420, 443, 444, 448, 449, 450; ECN 323, 324, 327, 328, 344, 363, 368, 376; any 500-level STA courses (except STA 352); MBA 530, 550; PSY 335, 384, 385, 434. Note: only ISE 513 or STA 513 will be allowed – not both (these are cross-listed courses).

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

German Language Requirements					
GER 101, 102, & 111 will not count toward major requirements.					
Sem	Course	Cr	Gr	QP	
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER ____				
	GER 4 ____	3			
6 Credits in Literature, at least 3 at 400-level					
	GER ____	3			
	GER 4 ____	3			
		30			

General Education Outcome Audit		
	Course	Credit
Knowledge		
A1. STEM	CHM & PHY (see above)	11
A2. Social & Behavioral Sciences		
A3. Humanities	GER 205/206 (suggested)	3
A4. Arts & Design	EGR 105 & 106	3
Competences		
B1. Write Effectively		
B2. Communicate Effectively		
B3. Mathematical, statistical, or computational strategies	MTH (see above)	11
B4. Information literacy		
Responsibilities		
C1. Civic knowledge & responsibilities		
C2. Global responsibilities	GER 205/206 (suggested)	3
C3. Diversity and Inclusion	PHL 212	3
Inegrate & Apply		
D1. Ability to synthesize	TBD from major requirements	3
Grand Challenge		
G. Check that at least one course of your 40 credits is an approved "G" course		
Total General Education Outcome Credits		40