INDUSTRIAL AND SYSTEMS ENGINEERING (SIEP TRACK B) - CLASS OF 2021

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	
SPA 103	Intermediate Spanish I	3	
		15	

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	
SPA 104	Intermediate Spanish II	3	
		16	

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	
SPA 205	Spanish Language & Style I	3	
		17	

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	
SPA 206	Spanish Language & Style 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	
SPA 325	Introduction to Literary Genres	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	
ISE 334	Simulation Modeling and Analysis	3	
SPA 321	Spanish for Business and Technology	3	
		18	

Semester Abroad

Course Code	Description	Cr	
SPA/EGR 412	Technical Spanish/Professional Elective***	3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
	Engineering Course	3	
SPA 4XX		3	
SPA 3XX		3	
		18	

International Internship Semester

Course Code	Description	Cr	
SPA 316-317	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	
SPA 4XX		3	
		18	

Senior Year Spring Semester

Course Code	Description	Cr	
ISE 402	ISE Capstone Design II (D1)	3	
	Approved Professional Elective***	3	
	Approved Professional Elective***	3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
SPA 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

	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

	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

		Cr			
		3			
		3			

Business

	Course	Cr			
	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 334	3			
	ISE 401 [capstone]	3			
	ISE 402 [capstone]	3			
	ISE 420	3			
	ISE 451	3			
	MCE 201	3			
	MCE 262	3			
	MCE 263	3			
		56			

***Professional Elective

		Cr			
		3			
		3			
		3			
		3			
		12			

***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. General education courses may also by 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 offereed 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 (requires ISE/MBA 4+1 Admission); 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.

IEP/Spanish Language Requirements (min. 30 credits)

Sem	Course	Cr	Gr	QP
	SPA 103/104	6		
	SPA 205/206	6		
	SPA 316	3		
	SPA 317	3		
	SPA 321	3		
	SPA 325	3		
	SPA 412	3		
	SPA 4___	3		
	SPA 4___	3		
	SPA 4___	3		

SPA 101, 102, 391, 392, and 393 cannot be counted towards the Spanish major and SPA 321 may only count toward the major for students in the IEP or IBP

SPA 412 and 421 will not fulfill any of the 9 credits required that are above the 400-level, but may count toward any of the remaining credits required for the major.

LIN 202 and 220 may be used towards major requirements

The IEP requires that students complete SPA 316, 317, and 321. IEP students must also complete SPA 412. IEP students that are beginning Spanish at the 200-level may use up to 6 credits of Portuguese toward the major, as long as all other requirements are met.

Students may opt to take summer or Jterm classes to advance in their Spanish skills at a faster pace.

General Education Outcome Audit

	Course	Credit
Knowledge		
A1. STEM	CHM & PHY (see above)	11
A2. Social & Behavioral Sciences		3
A3. Humanities	SPA 205/206 (suggested)	3
A4. Arts & Design	EGR 105 & 106	3
Competences		
B1. Write Effectively		
B2. Communicate Effectively		
computational stagies	MTH (see above)	11
B4. Information literacy		
Responsibilities		
C1. Civic knowledge & responsibilities		
C2. Global responsibilities	SPA 205/206 (suggested)	3
C3. Diversity and Inclusion	PHL 212	
Inegrate & Apply		
D1. Ability to synthesize	ISE 402	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