

Industrial & Systems Engineering Degree Checklist (2024/25 catalog)

Complete	Core Curriculum (27-33 units)	Course that Satisfies Requirement	Units
	First Year Writing (CFYW)	FYW 150	3
	Mathematical Reasoning (CMRP)	MATH 150	
	Second Language Competency		3 to 9
	Lower-Division Theological and Religious Inquiry (FTRI)		3
	Upper-Division Theological and Religious Inquiry (FTRI)		3
	Philosophical Inquiry (FPHI)		3
	Ethical Inquiry (FETI)	PHIL 332, 338, 342, or 345	
	Scientific and Technological Inquiry (ESTI)	ENGR 101	
	Historical Inquiry (EHSI)		3
	Social and Behavioral Inquiry (ESBI)		3
	Literary Inquiry (ELTI)		3
	Artistic Inquiry (EARI)		3
	Diversity, Inclusion, Social Justice (FDD1)	ENGR 103	
	Diversity, Inclusion, Social Justice (FDD2 or FDG2)		
	Advanced Writing (CADW)	ISYE 305	
	Oral Communication (CORL)	ISYE 305	
	Quantitative Reasoning (CQUR)	ISYE 330	
	First Year Integration (CINL)	LLC course	
	Advanced Integration (CINT)	ISYE 492	
	Math/Science Courses (26 units)	Prerequisites/(Corequisites)	
**Students must complete a minimum of 34 units of required Math, Science, and Engineering Core to take ISYE 310, ISYE 340, ISYE 305.	CHEM 151/151L - General Chemistry I & Lab	(MATH 115 or MATH 150 or MATH 151)	4
	MATH 150 - Calculus I	MATH 115 or by placement test	4
	MATH 151 - Calculus II	MATH 150 [C- or better]	4
	MATH 310 - Applied Math for Science and Engineering I	MATH 151 [C- or better]	3
	MATH Elective (MATH 250, 262 or other approved by Chair)	MATH 151 [C- or better]	3
	PHYS 270/270L - Mechanics & Lab	MATH 150 [C- or better]	4
	PHYS 271/271L - Electricity and Magnetism & Lab	PHYS 270/270L [C- or better], MATH 151 [C- or better]	4
	Engineering Core Courses (18.5 units)	Prerequisites/(Corequisites)	
	ENGR 101 - Intro to Engineering	(MATH 150)	3
	ENGR 102 - Electromechanical System Design	ENGR 101, ENGR 121/COMP 110, (MATH 151)	3
ENGR 103 - User-Centered Collaborative Design	ENGR 101, (MATH 151)	3	
COMP 110 - Computational Problem Solving	MATH 115 or placement in MATH 133 or higher	3.5	
MENG 210 - Statics	MATH 150, PHYS 270	3	
ENGR Lower Division Elective (from approved list or approved by Chair)	See Undergraduate Catalog for respective course prerequisites/corequisites	3	
	ISyE Required Courses (53 units)	Prerequisites/(Corequisites)	
	PHIL 342 - Engineering Ethics (or PHIL 332, 338 or 345)		3
	MENG 311 or ENGR 311 - Materials Science/Engineering	MATH 151, CHEM 151, CHEM 151L, (ENGR 311 also PHYS 271)	3
	ISyE 220 - Engineering Economics	(ISYE 330)	3
	ISyE 305 - Professional Practice	** FYW 150, (ISYE 310)	3
	ISyE 310 - Work Analysis w/ Lab	** (ISYE 330) [C- or better]	4
	ISyE 320 - Intro to Systems Engineering	ISYE 330 [C- or better], ISyE 305, ISYE 220	3
	ISyE 330 - Engineering Probability/Statistics	MATH 151	3
	ISyE 335 -6 sigma - Process Improvement Methods	ISYE 310, ISYE 330 [C- or better]	4
	ISyE 340 - Operations Research I	** MATH 310 or MATH 320	3
	ISyE 350 - Manufacturing Processes w/ Lab	ENGR 311 or MENG 311, and MENG 210	4
	ISyE 420 - Simulation of Production and Service Systems w/ Lab	COMP 110, and ISYE 440	4
	ISyE 430 - Design/Analysis of Experiments	ISYE 335	3
	ISyE 440 - Operations Research II	ISYE 340, ISyE 330 [C- or better], MATH 310 or MATH 320	3
	ISyE 460 - Operations & Supply Chain Mgmt.	ISYE 220, ISYE 340	3
	ISyE 470 - Facilities Planning	ISYE 340, ISyE 310	3
	ISYE 491 - ISyE Senior Design Preparation	(ISYE 220), 310, ISYE 320, ISYE 335, ISYE 350 or (ISYE 420), (ISYE 430), (ISYE 470)	1
	ISyE 492 - Senior Design	ISYE 220, 310, 320, 335, (350), (440), 470, 491, 350 or 420	3
Complete	ISyE Elective Courses (15 units)		
	ISYE Program Elective I*		3
	ISYE Program Elective II*		3
	ISYE Program Elective III*		3
	ISYE Program Elective IV*		3
	ISYE Program Elective V*		3
Complete	Additional Requirements	Notes for Additional Requirements	
	Connect (Career Readiness Program)	Complete 12 points (orientation, networking, senior survey, and 9 flex points)	
	Free Electives	Complete additional units needed to meet 147 unit requirement for degree	
		Total ISyE Degree Units	147

* Students have the option to obtain a Sustainability Concentration as part of ISyE BS/BA degree by completing 12 units of sustainability-related classes (can also be counted as ISyE program electives). Refer to USD 2024-25 Undergraduate Catalog (page 395 for more details).

* Students must select 15 units of ISyE program electives. Nine units of these electives must be upper division within the school of engineering. Three of the remaining six units must be upper division. The currently approved engineering upper division electives include ISYE 380, ISYE 385, ISYE 410, ISYE 450, ISYE 480, NAVS 301, and ISYE 494 special topics courses. Consult with the ISyE chair for other approved electives.

***At least 30 units of upper-division engineering or computer science courses for the major must be completed at USD.