

Industrial & Systems Engineering Degree Checklist (2026/27 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	
	Critical Thinking (CCTH)		
	Information Literacy (CILT)		
	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 305, ISYE 310, ISYE 340	CHEM 151/151L - General Chemistry I & Lab	(MATH 115 or MATH 150 or MATH 151)	4
	MATH 150 - Calculus I	MATH 115 (C- or higher) or placement in MATH 133/150	4
	MATH 151 - Calculus II	MATH 150 (C- or higher)	4
	MATH 310 - Applied Math for Science and Engineering I	MATH 151 (C- or higher)	3
	MATH Elective (MATH 250, 262 or other approved by Chair)	MATH 151 (C- or higher)	3
	PHYS 270/270L - Mechanics & Lab	MATH 150 (C- or higher)	4
	PHYS 271/271L - Electricity and Magnetism & Lab	PHYS 270/270L (C- or higher), MATH 151 (C- or higher)	4
	Engineering Core Courses (15.5 units)	Prerequisites/(Corequisites)	
	ENGR 101 - Intro to Engineering	(MATH 150)	3
	ENGR 102 - Electromechanical System Design	ENGR 101, COMP 110, (MATH 151), (PHYS 270)	3
	ENGR 103 - User-Centered Collaborative Design	ENGR 101, (MATH 151)	3
	COMP 110 - Computational Problem Solving	(MATH 115) or placement in MATH 133/150	3.5
	MENG 210 - Statics	MATH 150, PHYS 270	3
	ISYE Required Courses (59 units)	Prerequisites/(Corequisites)	
	PHIL 342 - Engineering Ethics (or PHIL 332, 338 or 345)		3
	MENG 311 - Materials Science/Engineering	MATH 151, CHEM 151, CHEM 151L	3
	ISYE 200 - Data Science Foundations for Engineers	MATH 151, (ISYE 330)	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)	4
	ISYE 320 - Intro to Systems Engineering	ISYE 220, ISYE 305, ISYE 330 (C- or higher)	3
	ISYE 330 - Engineering Probability/Statistics (must earn C- or higher)	MATH 151	3
	ISYE 335 - Six Sigma - Process Improvement Methods	ISYE 310, ISYE 330 (C- or higher)	4
	ISYE 340 - Operations Research I	** MATH 310 or MATH 320	3
	ISYE 355 - Smart Manufacturing: Process, Logic & Automation	COMP 110, MENG 210, MENG 311, (ISYE 355L)	3
	ISYE 355L - Smart Manufacturing Laboratory	(ISYE 355)	1
	ISYE 420 - Simulation of Production and Service Systems w/Lab	COMP 110, ISYE 440	4
	ISYE 430 - Design/Analysis of Experiments	ISYE 335	3
	ISYE 440 - Operations Research II	ISYE 330 (C- or higher), ISYE 340, and MATH 310 or MATH 320	3
	ISYE 460 - Operations & Supply Chain Mgmt.	ISYE 220, ISYE 340	3
	ISYE 470 - Facilities Planning	ISYE 310, ISYE 340	3
	ISYE 480 - Data Science and Analytics	COMP 110, ISYE 330	3
	ISYE 491 - ISyE Senior Design Preparation	ISYE 220, ISYE 310, ISYE 335, ISYE 430, (ISYE 350 or ISYE 355 or (ISYE 420)), (ISYE 470)	1
	ISYE 492 - Senior Design	ISYE 220, ISYE 310, ISYE 320, ISYE 335, ISYE 470, ISYE 491, (ISYE 350 or ISYE 355 or ISYE 420), (ISYE 350 or ISYE 355), (ISYE 440)	3
Complete	ISYE Elective Courses (12 units)		
	ISYE Program Elective I*	See Undergraduate Catalog for respective course prerequisites/corequisites	3
	ISYE Program Elective II*	See Undergraduate Catalog for respective course prerequisites/corequisites	3
	ISYE Program Elective III*	See Undergraduate Catalog for respective course prerequisites/corequisites	3
	ISYE Program Elective IV*	See Undergraduate Catalog for respective course prerequisites/corequisites	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 Undergraduate Catalog for more details.

* Students must select 12 units of ISyE program electives. Six 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.