

Industrial & Systems Engineering Degree Checklist (2025/26 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 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), (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 150 | 3.5 | |
| MENG 210 - Statics | MATH 150, PHYS 270 | 3 | |
| ENGR Lower Division Elective (ELEC 201/201L, GENG 288, MENG 260) | 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), ISYE 310, ISYE 320, ISYE 335, ISYE 350 or (ISYE 420), (ISYE 430), (ISYE 470) | 1 |
| | ISyE 492 - Senior Design | ISYE 220, ISYE 310, ISYE 320, ISYE 335, ISYE 420, ISYE 470, ISYE 491, | 3 |
| Complete | ISyE Elective Courses (15 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 |
| | ISyE Program Elective V* | 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 2025-26 Undergraduate Catalog 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.