# Industrial and Systems Engineering Graduation Requirements

University of Washington  
https://ise.washington.edu

## Requirement Sheet Key
- ♦ = Upper-Division Admission Requirements
- * = AA 210 and either CEE 220 or ME 230 are prerequisites beginning in 2019

### Mathematics (24 Credits)
- ♦ MATH 124 (5cr) - Calculus I
- ♦ MATH 125 (5cr) - Calculus II
- ♦ MATH 126 (5cr) - Calculus III
- MATH 307 (3cr) - Differential Equations [pr: Math 125]
- MATH 308 (3cr) - Matrix Algebra [pr: Math 126]
  (AMATH 351/352 may substitute MATH 307/308)
- IND E 315 (3cr) - Prob. & Statistics for Engrs. [pr: Math 307]

### Natural Sciences (25 Credits)
- ♦ CHEM 142 (5cr) - General Chem I with Lab
- ♦ CHEM 152 (5cr) - General Chem II with Lab
- ♦ PHYS 121 (5cr) - Mechanics with Lab I [pr: Math 124]
- ♦ PHYS 122 (5cr) - Electro/Oscillatory with Lab II
- ♦ PHYS 123 (5cr) - Waves with Lab III

### Written & Oral Communications (12 Credits)
- ♦ English Comp (5cr) - English Composition
- ENGR 231 (3cr) - Intro to Technical Writing
  Additional Composition will be done in IND E 337

### Visual, Literary & Performing Arts/Individuals & Society (VLPA/I&S) (30 Credits)
- 10 credits of VLPA
- 10 credits of I&S
- 10 credits of VLPA or I&S
- 3 credits of Diversity (DIV)
  (DIV can overlap with VLPA or I&S)

### Engineering Fundamentals (28 Credits)
- ♦ AA 210* (4cr) – Engineering Statics [pr: Math 126, Phys 121]
- ♦ ME 230* (4cr) – Kinematics & Dynamics [pr: AA 210]
- ♦ CSE 142 (4cr) – Computer Programming I
- ♦ MSE 170 (4cr) – Fund. of Material Science [pr: Chem 152]
- ♦ EE 215 (4cr) – Fund. of EE [pr: Phys 122, Math 126]
- ♦ IND E 250 (4cr) – Fundamentals of Engineering Economy

## IND E Core Courses (24 Credits)
- IND E 316 (4cr) - Design of Experiments
- IND E 337 (4cr) - Intro to Manufacturing Systems
- IND E 410 (4cr) - Linear & Network Programming
- IND E 411 (4cr) - Stochastic Models & Decision Analysis
- IND E 494 (4cr) - Design in the Manufacturing Firm
- IND E 495 (4cr) - Industrial Engineering Design

## Technical Electives (37 Credits)
Complete a minimum of 37 credits, including AT LEAST one course from each of the following 5 categories:
- Operations Research: IND E 412, IND E 424
- Statistics: IND E 321, IND E 426
- Production/Operations: IND E 430, IND E 439
- Design: IND E 351, IND E 455
- General Engineering: AA 260 or CSE 143

Note: See IND E adviser for additional technical electives on approved list.

## Total Credits Required for Graduation (180 credits)

### Early Admission Requirements
1. Early Admission is an option for Autumn Quarter only.
2. Students must be enrolled at UW Seattle.
3. MATH 124, 125 & 126 or equivalent.
4. 10 credits of physical science courses plus accompanying lab at the level of CHEM 142, 152; PHYS 121, 122, 123.
5. 5 credits of English composition.
6. 15 credits must have been completed at UW.

### Application Deadlines
- Autumn 2018 admission: Early and Upper-Division - July 1st
- Autumn 2019 admission and beyond*: April 5th annually

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**This is a sample four-year plan. It is intended to provide a framework for students to reference as they create their own individual academic plan.**

### Freshman - Autumn Quarter
- Math 124 - Calculus I 5
- Chem 142 - Chem & Lab I 5
- VLPA/I&S 5

### Freshman - Winter Quarter
- Math 125 - Calculus II 5
- Chem 152 - Chem & Lab II 5
- English Composition 5

### Freshman - Spring Quarter
- Math 126 - Calculus III 5
- Phys 121 - Mechanics & Lab I 5
- CSE 142 - Comp. Programming I 5

**Quarter Total** 15 15 15

### Sophomore - Autumn Quarter
- PHYS 122 - Electro & Lab II 5
- A A 210*- Engineering Statics 4
- MATH 307 - Diff. Equations 3
- VLPA/I&S 3-5

### Sophomore - Winter Quarter
- PHYS 123 - Waves & Lab III 5
- MATH 308 - Matrix Algebra 3
- CEE 220*- Mech. of Materials 4
- VLPA/I&S 5

### Sophomore - Spring Quarter
- IND E 250 - Engineering Economy 4
- ME 230* - Kinematics & Dynamics 4
- MSE 170 - Materials Science 4
- VLPA/I&S 5

**Quarter Total** 15-17 17 17

### Junior - Autumn Quarter
- IND E 337 - Intro. Manufact. Syst. 4
- IND E 410 - Applied Linear Prog. 4
- IND E Technical Elective 4
- IND E 315 - Engr. Statistics 3

### Junior - Winter Quarter
- IND E 411 - Stoch. Models & D.A. 3
- IND E 316 - Design of Experiments 4
- ENGR 231 - Intro to Tech. Writing 3
- IND E Technical Elective 4

### Junior - Spring Quarter
- EE 215 - Fundamentals of EE 4
- IND E Technical Elective 3
- IND E Technical Elective 4
- IND E Technical Elective 4

**Quarter Total** 15 14 15

### Senior - Autumn Quarter
- IND E Technical Elective 4
- IND E Technical Elective 4
- IND E Technical Elective 3
- Elective 5

### Senior - Winter Quarter
- IND E 494 - Design in Manuf. 4
- Firm IND E Technical Elective 4
- VLPA/I&S 5

### Senior - Spring Quarter
- IND E 495 - Senior Design 4
- IND E Technical Elective 3
- VLPA/I&S 5

**Quarter Total** 16 13 12

**Bold face** courses are required for upper-division admission. See IND E website for list of technical electives.

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