## Bachelor of Science in Industrial & Systems Engineering Graduation Requirements

### Mathematics [24 credits]
- MATH 124 (or 127)* [5cr] Calculus with Analytic Geometry I
- MATH 125 (or 128)* [5cr] Calculus with Analytic Geometry II
- MATH 126 (or 129)* [5cr] Calculus with Analytic Geometry III
- MATH 307 [3cr] Intro to Differential Equations [pr: MATH 125]
- MATH 308 [3cr] Linear Algebra with Applications [pr: MATH 126]

*The sequence of MATH 127, 128, 129 may be taken in lieu of 124, 125, 126.

### Physical Sciences [25 credits]
- CHEM 142 [5cr] General Chemistry with lab
- CHEM 152 [5cr] General Chemistry with lab [pr: CHEM 142]
- PHYS 121* [5cr] Mechanics with lab [pr: MATH 124]
- PHYS 122* [5cr] Electro/ Oscillatory with lab [pr: MATH 125]
- PHYS 123* [5cr] Waves with lab [pr: MATH 126]

*The accompanying lab sections to PHYS 121, 122, 123 must be completed.

### Written and Oral Communications [12 credits]
- ENGL COMP [5cr] University English Composition requirement
- HCDE 231 [3cr] Intro to Technical Writing [pr: ENGL COMP]
- IND E 337 [4cr] Intro to Manufacturing Systems

### Visual, Literary & Performing Arts/Individuals & Society & Diversity [30 credits]
Minimum 10 credits in VLPA required.
Minimum 10 credits in I&S required.
Minimum 3 credits of Diversity required.

### General Engineering/Computing Courses [28 credits]
- CSE 142 [4cr] Computer Programming for Engineers
- MEE 170 [4cr] Fund of Material Science [pr: CHEM 152]
- AA 210 [4cr] Engineering Statics [pr: MATH 126, PHYS 121]
- EE 215 [4cr] Fund. of Electrical Engineering [pr: PHYS 122, MATH 126]
- CEE 220 [4cr] Intro to Mechanics of Material [pr: AA 210]
- IND E 250 [4cr] Fund. of Engineering Economy

### Industrial Engineering Required Core Courses [24 credits]
- IND E 337* [4cr] Intro to Manufacturing Systems
- IND E 410 [4cr] Linear & Network Programming [pr: either MATH 136 or MATH 308, CSE 142]
- IND E 494 [4cr] Design in the Manufacturing Firm [pr: IND E 337, senior standing]
- IND E 495 [4cr] Industrial Engineering Design [pr: IND E 494]

### Technical Electives [minimum 37 credits]
Complete a minimum of 37 credits, including AT LEAST one course from EACH of the following 5 categories.

A. Operations Research:
- IND E 412 [4cr] Integer and Dynamic Programming [pr: IND E 411]
- IND E 424 [4cr] Simulation [pr: IND E 337 &411; 411 may be taken concurrently]

B. Statistics:
- IND E 321 [4cr] Statistical Quality Control [pr: IND E 315]

C. Production/Operations:
- IND E 430 [4cr] Manufacturing Scheduling & Inventory [pr: IND E 337 &410; both of which may be taken concurrently]
- IND E 439 [4cr] Plant Layout & Material Handling [pr: IND E 410; which may be taken concurrently]

D. Design:
- IND E 351 [4cr] Human Factors in Design
- IND E 455 [4cr] User Interface Design

E. General Engineering:
- AA 260 [4cr] Thermodynamics [pr: CHEM 142, MATH 126, PHYS 121]
- CSE 143 [5cr] Computer Programming for Engineers II [pr: CSE 142]

Additional technical elective courses may also be chosen from the approved Undergraduate Technical Elective List. Refer any questions to the ISE Advisor.

### Total credits required for Graduation
180 credits
(includes 4 credits free elective)

### Early Admission Requirements:
- AUTUMN quarter only
- Must be enrolled at UW w/ at least 15cr earned at UW
- Must complete: MATH 124, 125, 126 or equiv; 10 cr of Physical Science requirements; 5 cr ENGL COMP

Revised 12/4/14