

# INDUSTRIAL & SYSTEMS ENGINEERING

| FIRST YEAR               |                                           | SECOND YEAR                     |                           | THIRD YEAR                   |                                      | FOURTH YEAR                                   |                                     |
|--------------------------|-------------------------------------------|---------------------------------|---------------------------|------------------------------|--------------------------------------|-----------------------------------------------|-------------------------------------|
| FALL                     | SPRING                                    | FALL                            | SPRING                    | FALL                         | SPRING                               | FALL                                          | SPRING                              |
| ENGR 102<br>2            | ISE 150<br>4                              | ISE 220<br>MATH 126<br>4        | ISE 225<br>ISE 220<br>4   | ISE 315L<br>ISE 225<br>4     | ISE 435L<br>ISE 150, ISE 225<br>4    | ISE 350<br>ISE 225<br>4                       | ISE 410<br>ISE 330<br>4             |
| ISE 105<br>2             | PHYS 151L (GE E)<br>MATH 125<br>4         | CHEM 150aL<br>or MASC 110*<br>4 | ISE 330<br>MATH 225<br>4  | ISE 370L<br>4                | ISE 495a<br>ISE 225, ISE 382<br>2    | ISE 495b<br>ISE 315, ISE 370,<br>ISE 435<br>2 | ISE 440<br>4                        |
| MATH 125<br>(GE F)*<br>4 | MATH 126 or<br>MATH 129*<br>MATH 125<br>4 | MATH 225<br>MATH 126<br>4       | GE B<br>4                 | ISE 382<br>4                 | PHYS 152L<br>PHYS 151, MATH 126<br>4 | WRIT 340<br>WRIT 150<br>4                     | ISE APPROVED<br>ELECTIVE<br>4       |
| WRIT 150<br>4            | GESM (GE A)#<br>4                         | GE C<br>4                       | FREE<br>ELECTIVE<br>4     | MATH 226 OR<br>MATH 229<br>4 | GE C<br>4                            | ISE APPROVED<br>ELECTIVE<br>4                 | BIOLOGY<br>ELECTIVE<br>(GE D)*<br>4 |
| GE B<br>4                | OPTIONAL<br>ELECTIVE<br>2                 | OPTIONAL<br>ELECTIVE<br>2       | OPTIONAL<br>ELECTIVE<br>2 | OPTIONAL<br>ELECTIVE<br>2    | FREE<br>ELECTIVE<br>4                | OPTIONAL<br>ELECTIVE<br>4                     | OPTIONAL<br>ELECTIVE<br>2           |

## Mathematics (16 Units)

- MATH 125: Calculus I\*
- MATH 126 **OR** MATH 129: Calculus II\*
- MATH 226 **OR** MATH 229: Calculus III
- MATH 225: Linear Algebra and Diff. Equations

## Science (16 Units)

- CHEM 105aL: General Chemistry\*
- **OR** MASC 110L: Materials Science
- PHYS 151L: Mechanics and Thermodynamics
- PHYS 152L: Electricity and Magnetism
- BIOLOGY ELECTIVE

## Engineering (60 Units)

- ENGR 102: Engineering Freshman Academy
- ISE 105: Intro. to Industrial and Systems Engineering
- ISE 150: Solving Engineering Problems using Python
- ISE 220: Foundations of Probability Modeling
- ISE 225: Foundations of Data Analysis
- ISE 315L: Engineering Project Management
- ISE 330: Optimization
- ISE 350: Principles and Practices of Systems Engineering
- ISE 370L: Human Factors in Work and Systems Design
- ISE 382: Database Systems: Storage and Retrieval using SQL
- ISE 410: Planning and Scheduling for Production and Supply Chains
- ISE 435L: Discrete Systems Simulation
- ISE 440: Socio-Technical Systems and Work Organizations
- ISE 495a: Senior Design Project
- ISE 495b: Senior Design Project
- ISE APPROVED ELECTIVES

## Writing (8 Units)

- WRIT 150: Writing and Critical Reasoning
- WRIT 340: Advanced Writing

## General Education (20 Units)

- GE A The Arts (1 Course)\*
- GE B Humanistic Inquiry (2 Courses)
- GE C Social Analysis (2 Courses)
- GE D Life Sciences (1 Course)\*
- GE E Physical Sciences (1 Course)\*
- GE F Quantitative Reasoning (1 Course)\*
- GE G,H Global Perspectives (2 Courses)\*
- GESM General Education Seminar (1 Course)

## Free Electives (8 Units)

### SPECIAL NOTES

- **Courses with the \* symbol** may be satisfied with AP, IB or A-Level exams. See page 18 for more information.
- **GESM#:** GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.
- **GE:** ISE students satisfy GE D with BIOLOGY ELECTIVE, GE E with CHEM 105aL or PHYS 151L, and GE F with MATH 125. Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.
- **ISE Approved Electives:** 8 units of coursework. See academic advisor for approved list of courses.
- **Biology Elective:** Select one among BISC 103, BISC 104, BISC 230, or HBIO 205