

**REQUIREMENTS FOR THE BACHELOR OF SCIENCE**  
**GALLOGLY COLLEGE OF ENGINEERING**  
**THE UNIVERSITY OF OKLAHOMA**

| Academic Year  |
|--|
| For Students Entering the Oklahoma State System for Higher Education<br><b>Summer 2024 through Spring 2025</b> |

| General Requirements                                      |      |
|---|------|
| Minimum Total Credit Hours .....                          | 129  |
| <b>Minimum Retention/Graduation Grade Point Averages:</b> |      |
| Overall - Combined and OU .....                           | 2.00 |
| Major - Combined and OU .....                             | 2.00 |
| Curriculum - Combined and OU .....                        | 2.00 |

| Program  |
|--|
| <b>Industrial and Systems Engineering - Analytics Option</b> |
| B529   |
| Bachelor of Science  |

OU encourages students to complete at least 33 hours of applicable coursework each year to have the opportunity to graduate in 4 years.

**GENERAL EDUCATION AND COLLEGE REQUIREMENTS**

Courses designated as Core I, II, III, IV, or V are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list, including at least one upper-division Gen. Ed. course outside of the student's major. **Courses graded P/NP will not apply.**

**A grade of C or better is required in each course in the curriculum, including all prerequisite courses.**

**UNIVERSITY-WIDE GENERAL EDUCATION (MINIMUM 40 HOURS) AND COLLEGE REQUIREMENTS**

| Code  | Title   | Credit Hours |
|---|---|--------------|
| <b>Core Area I: Symbolic and Oral Communication</b>                           |   |              |
| <i>English Composition</i>  |   |              |
| ENGL 1113   | Principles of English Composition   | 3            |
| ENGL 1213   | Principles of English Composition   | 3            |
| or EXPO 1213  | Expository Writing  |              |
| <i>Language (0-10 hours in the same language)</i>                             |   |              |
| This requirement can be met by two years of the same language in high school: |   | 0-10         |
| Beginning Course (0-5 hours)  |   |              |
| Beginning Course, continued (0-5 hours)                                       |   |              |
| <i>Mathematics</i>  |   |              |
| MATH 1914   | Differential and Integral Calculus I (Core I) <sup>1,2</sup>              | 4            |
| <b>Core Area II: Natural Science (including one laboratory)</b>               |   |              |
| PHYS 2514   | General Physics for Engineering and Science Majors (Core II) <sup>2</sup> | 4            |
| Natural Science Elective with Lab <sup>4</sup>                                |   | 4            |
| <b>Core Area III: Social Science</b>  |   |              |
| P SC 1113   | American Federal Government   | 3            |
| Choose one course <sup>3</sup>  |   | 3            |
| <b>Core Area IV: Arts &amp; Humanities</b>                                    |   |              |
| <i>Artistic Forms</i>   |   |              |
| Choose one course <sup>3</sup>  |   | 3            |
| <i>Western Culture</i>  |   |              |
| HIST 1483   | United States to 1865   | 3            |
| or HIST 1493  | United States, 1865 to the Present  |              |
| Choose one course (excluding HIST 1483 and HIST 1493) <sup>3</sup>            |   | 3            |
| <i>World Culture</i>  |   |              |
| Choose one course <sup>3</sup>  |   | 3            |
| <b>Core Area V: First-Year Experience</b>                                     |   |              |
| ENGR 1413   | Pathways to Engineering Thinking (Core V-FYE) <sup>5</sup>                | 3            |
| <b>Total Credit Hours</b>   |   | <b>39-49</b> |

- MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.
- Major support requirements that also satisfy University General Education requirements.
- To be chosen from the University-Wide General Education Approved Course List. Three of these hours must be upper-division (3000-4000). See list in the Class Schedule.
- Courses taken to fulfill the Natural Science requirement must be chosen from the University-Wide General Education Approved Course List (Core II). At least one of the Natural Science Courses must be a non-Physics course. All science courses must be for science or engineering majors and come from the natural science elective list maintained by the department.
- Transfer students will need to meet the requirements of the first-year experience course as well as the engineering transfer course. Please see your advisor for your specific enrollment.

**FREE ELECTIVES**

Electives to bring total applicable hours to the minimum total required for the degree including a minimum of 40 upper-division hours.

**Bachelor of Science in Industrial and Systems Engineering accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Industrial Engineering and Similarly Named Engineering Programs Program Criteria.**

In order to progress in your curriculum in the Gallogly College of Engineering, and as a specific graduation requirement, a **grade of C or better** is required in each course in the curriculum, including all prerequisite courses.

**MAJOR REQUIREMENTS**

| Code   | Title  | Credit Hours |
|--|--|--------------|
| <b>Required Courses</b>                                |  |              |
| ISE 2823   | Enterprise Engineering   | 3            |
| ISE 2311   | Computer Aided Design and Graphics Laboratory for Industrial Engineers | 1            |
| ISE 2303   | Design and Manufacturing Process                                       | 3            |
| ISE 3293   | Applied Engineering Statistics   | 3            |
| ISE 3304   | Design and Manufacturing II  | 4            |
| ISE 4113   | Spreadsheet Dec Support Sys  | 3            |
| ISE 4553   | Data-Driven Decision Making I  | 3            |
| ISE 4623   | Deterministic Systems Models   | 3            |
| ISE 4223   | Fundamentals of Engineering Economy                                    | 3            |
| ISE 4563   | Quality & Reliability Engineering                                      | 3            |
| ISE 4633   | Probabilistic Systems Models   | 3            |
| ISE 4804   | Ergonomics in Systems Design   | 4            |
| ISE 4333   | Production Systems/Operations  | 3            |
| ISE 4383   | Systems Evaluation   | 3            |
| ISE 4663   | Systems Analysis Using Simulation                                      | 3            |
| ISE 4853   | Data-Driven Decision Making II   | 3            |
| ISE 4393   | Capstone Design Project  | 3            |
| <b>ISE Elective</b>                                    |  |              |
| Choose a three-hour approved ISE Elective <sup>1</sup> |  | 3            |
| <b>Total Credit Hours</b>                              |  | <b>54</b>    |

- List of ISE Electives and is available in the ISE office, CEC 124

**MAJOR SUPPORT REQUIREMENTS**

| Code   | Title  | Credit Hours |
|--|--|--------------|
| <b>Math and Science</b>  |  |              |
| MATH 2924  | Differential and Integral Calculus II                                | 4            |
| MATH 2934  | Differential and Integral Calculus III                               | 4            |
| MATH 2513  | Discrete Mathematical Structures                                     | 3            |
| <b>Additional College Requirements</b>                             |  |              |
| C S 1323   | Introduction to Computer Programming for Programmers                 | 3            |
| ENGR 2002  | Professional Responsibilities and Skills of Engineers and Scientists | 2            |
| CEES 2113  | Statics  | 3            |
| CEES 2153  | Mechanics of Materials   | 3            |
| C S 2334   | Programming Structures and Abstractions                              | 4            |
| C S 2414   | Data Structures  | 4            |
| 6 hours of C S Electives chosen from an approved list <sup>2</sup> |  | 6            |
| <b>Total Credit Hours</b>  |  | <b>36</b>    |

- To be chosen from the C S Elective list available in the ISE office CEC 124. CS 3203 and C S 4513 are recommended electives

More information in the catalog: (<http://ou-public.courseleaf.com/gallogly-engineering/industrial-systems-engineering/industrial-systems-engineering-analytics-bachelor-science/>).

**SUGGESTED SEMESTER PLAN OF STUDY**

**Bachelor of Science in Industrial and Systems Engineering accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Industrial Engineering and Similarly Named Engineering Programs Program Criteria.**

**In order to progress in your curriculum in the Gallogly College of Engineering, and as a specific graduation requirement, a grade of C or better is required in each course in the curriculum, including all prerequisite courses.**

Two college-level courses in a single world language are required; this may be satisfied by successful completion of 2 years in a single world language in high school. Students who must take language at the University will have an additional 6-10 hours of coursework.

| Year      | FIRST SEMESTER      |  | Hours     | SECOND SEMESTER                  |   | Hours     |
|-----------|---------------------|--|-----------|----------------------------------|---|-----------|
| FRESHMAN  | ENGL 1113           | Principles of English Composition ( Core I )                         | 3         | ENGL 1213 or EXPO 1213           | Principles of English Composition ( Core I ) or Expository Writing      | 3         |
|           | MATH 1914           | Differential and Integral Calculus I ( Core I ) <sup>2</sup>         | 4         | MATH 2924                        | Differential and Integral Calculus II <sup>2</sup>                      | 4         |
|           | ENGR 1413           | Pathways to Engineering Thinking ( Core V-FYE ) <sup>3</sup>         | 3         | HIST 1483 or HIST 1493           | United States to 1865 ( Core IV ) or United States, 1865 to the Present | 3         |
|           |                     | Natural Science Elective with Lab <sup>1</sup>                       | 4         | PHYS 2514                        | General Physics for Engineering and Science Majors ( Core II )          | 4         |
|           |                     |  |           | C S 1323                         | Introduction to Computer Programming for Programmers                    | 3         |
|           | <b>CREDIT HOURS</b> |  | <b>14</b> | <b>CREDIT HOURS</b>              |   | <b>17</b> |
| SOPHOMORE | MATH 2934           | Differential and Integral Calculus III <sup>2</sup>                  | 4         | CEES 2153                        | Mechanics of Materials  | 3         |
|           | C S 2334            | Programming Structures and Abstractions                              | 4         | ISE 2303                         | Design and Manufacturing Process  | 3         |
|           | CEES 2113           | Statics  | 3         | ISE 2311                         | Computer Aided Design and Graphics Laboratory for Industrial Engineers  | 1         |
|           | ISE 2823            | Enterprise Engineering   | 3         | ISE 3293                         | Applied Engineering Statistics  | 3         |
|           | ENGR 2002           | Professional Responsibilities and Skills of Engineers and Scientists | 2         | C S 2414                         | Data Structures   | 4         |
|           |                     |  | MATH 2513 | Discrete Mathematical Structures | 3   |           |
|           | <b>CREDIT HOURS</b> |  | <b>16</b> | <b>CREDIT HOURS</b>              |   | <b>17</b> |
| JUNIOR    | ISE 3304            | Design and Manufacturing II  | 4         | ISE 4223                         | Fundamentals of Engineering Economy                                     | 3         |
|           | ISE 4113            | Spreadsheet Dec Support Sys  | 3         | ISE 4563                         | Quality & Reliability Engineering                                       | 3         |
|           | ISE 4553            | Data-Driven Decision Making I  | 3         | ISE 4633                         | Probabilistic Systems Models  | 3         |
|           | ISE 4623            | Deterministic Systems Models   | 3         | ISE 4804                         | Ergonomics in Systems Design  | 4         |
|           | C S 3203            | Software Engineering   | 3         |                                  | Approved Elective: Artistic Forms ( Core IV ) <sup>4</sup>              | 3         |
|           | P SC 1113           | American Federal Government ( Core III )                             | 3         |                                  |   |           |
|           | <b>CREDIT HOURS</b> |  | <b>19</b> | <b>CREDIT HOURS</b>              |   | <b>16</b> |
| SENIOR    | ISE 4333            | Production Systems/Operations  | 3         | ISE 4393                         | Capstone Design Project   | 3         |
|           | ISE 4383            | Systems Evaluation   | 3         |                                  | ISE Elective  | 3         |
|           | ISE 4663            | Systems Analysis Using Simulation                                    | 3         |                                  | Approved Elective: World Culture ( Core IV ) <sup>4</sup>               | 3         |
|           | ISE 4853            | Data-Driven Decision Making II                                       | 3         |                                  | Approved Elective: Social Science ( Core III ) <sup>4</sup>             | 3         |
|           | C S 4513            | Database Management Systems ( or other C S Elective ) <sup>5</sup>   | 3         |                                  | Approved Elective: Western Culture ( Core IV ) <sup>4</sup>             | 3         |
|           | <b>CREDIT HOURS</b> |  | <b>15</b> | <b>CREDIT HOURS</b>              |   | <b>15</b> |

<sup>1</sup> Courses taken to fulfill the Natural Science requirement must be chosen from the University-Wide General Education Approved Course List ( Core II ). At least one of the Natural Science Courses must be a non-Physics course. All Science courses must be for science or engineering majors and come from the natural science elective list maintained by the department.

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<sup>4</sup> To be chosen from the University-Wide General Education Approved Course List. Three of these hours must be upper-division (3000-4000). See list in the Class Schedule.

<sup>5</sup> To be chosen from the C S Elective list available in the ISE office, CEC 124

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