

# 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 2026 through Spring 2027</b> |

| General Requirements                                      |      |
|-----------------------------------------------------------|------|
| Minimum Total Credit Hours .....                          | 120  |
| <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</b> |
| <b>B524</b>                               |
| Bachelor of Science                       |

OU encourages students to complete at least 30 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.**

### MINIMUM OF 40 HOURS REQUIRED FOR UNIVERSITY-WIDE GENERAL EDUCATION

| 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            | 4            |
| Natural Science Elective with Lab <sup>3</sup>                                |                                                               | 4            |
| <b>Core Area III: Social Science</b>                                          |                                                               |              |
| P SC 1113                                                                     | American Federal Government                                   | 3            |
| Choose one course <sup>4</sup>                                                |                                                               | 3            |
| <b>Core Area IV: Arts &amp; Humanities</b>                                    |                                                               |              |
| <i>Artistic Forms</i>                                                         |                                                               |              |
| Choose one course <sup>4</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>4</sup>            |                                                               | 3            |
| <i>World Culture</i>                                                          |                                                               |              |
| Choose one course <sup>4</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.
- 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.
- 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.
- 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 4302                                               | Systems Thinking                                                       | 2            |
| 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>56</b>    |

- To be chosen from an approved list of ISE electives 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 Elective - Choose from approved list <sup>1</sup>                                     |                                                                      | 3            |
| <b>ISE Technical Elective</b>                                                              |                                                                      |              |
| Choose a three hour ISE Technical Elective from approved list maintained by the department |                                                                      | 3            |
| <b>Additional College Requirements</b>                                                     |                                                                      |              |
| ENGR 2002                                                                                  | Professional Responsibilities and Skills of Engineers and Scientists | 2            |
| C S 1323                                                                                   | Introduction to Computer Programming for Programmers                 | 3            |
| or C S 1313                                                                                | Programming for Non-Majors with C                                    |              |
| CEES 2113                                                                                  | Statics                                                              | 3            |
| CEES 2153                                                                                  | Mechanics of Materials                                               | 3            |
| <b>Total Credit Hours</b>                                                                  |                                                                      | <b>25</b>    |

- Chosen from an approved list maintained by the department. Options include MATH 2513, MATH 3113, MATH 3333, MATH 3413, and MATH 4433.

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

SUGGESTED SEMESTER PLAN OF STUDY

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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>1</sup> | 4     | C S 1323 or C S 1313   | Introduction to Computer Programming for Programmers or Programming for Non-Majors with C | 3     |
|           | ENGR 1413      | Pathways to Engineering Thinking ( Core V-FYE ) <sup>2</sup> | 3     | MATH 2924              | Differential and Integral Calculus II <sup>1</sup>                                        | 4     |
|           |                | Natural Science Elective with Lab <sup>3</sup>               | 4     | HIST 1483 or HIST 1493 | United States to 1865 ( Core IV ) or United States, 1865 to the Present                   | 3     |
|           |                |                                                              |       | PHYS 2514              | General Physics for Engineering and Science Majors ( Core II )                            | 4     |
|           | CREDIT HOURS   |                                                              | 14    | CREDIT HOURS           |                                                                                           | 17    |
| SOPHOMORE | MATH 2934      | Differential and Integral Calculus III <sup>1</sup>          | 4     | CEES 2153              | Mechanics of Materials                                                                    | 3     |
|           | CEES 2113      | Statics                                                      | 3     | ISE 3293               | Applied Engineering Statistics                                                            | 3     |
|           | ISE 2823       | Enterprise Engineering                                       | 3     | ISE 2303               | Design and Manufacturing Process                                                          | 3     |
|           | P SC 1113      | American Federal Government ( Core III )                     | 3     | ISE 2311               | Computer Aided Design and Graphics Laboratory for Industrial Engineers                    | 1     |
|           |                |                                                              |       |                        | MATH Elective                                                                             | 3     |
|           |                |                                                              |       | ENGR 2002              | Professional Responsibilities and Skills of Engineers and Scientists                      | 2     |
|           | CREDIT HOURS   |                                                              | 13    | CREDIT HOURS           |                                                                                           | 15    |
| JUNIOR    | ISE 3304       | Design and Manufacturing II                                  | 4     | ISE 4223               | Fundamentals of Engineering Economy                                                       | 3     |
|           | ISE 4113       | Spreadsheet Dec Support Sys                                  | 3     | ISE 4302               | Systems Thinking                                                                          | 2     |
|           | ISE 4553       | Data-Driven Decision Making I                                | 3     | ISE 4563               | Quality & Reliability Engineering                                                         | 3     |
|           | ISE 4623       | Deterministic Systems Models                                 | 3     | ISE 4633               | Probabilistic Systems Models                                                              | 3     |
|           |                | Approved Elective: Social Science (Core III) <sup>4</sup>    | 3     | ISE 4804               | Ergonomics in Systems Design                                                              | 4     |
|           | CREDIT HOURS   |                                                              | 16    | CREDIT HOURS           |                                                                                           | 15    |
| SENIOR    | ISE 4333       | Production Systems/Operations                                | 3     | ISE 4393               | Capstone Design Project                                                                   | 3     |
|           | ISE 4383       | Systems Evaluation                                           | 3     |                        | ISE Elective <sup>5</sup>                                                                 | 3     |
|           | ISE 4663       | Systems Analysis Using Simulation                            | 3     |                        | ISE Technical Elective <sup>6</sup>                                                       | 3     |
|           | ISE 4853       | Data-Driven Decision Making II                               | 3     |                        | Approved Elective: World Culture (Core IV) <sup>4</sup>                                   | 3     |
|           |                | Approved Elective: Artistic Forms (Core IV) <sup>4</sup>     | 3     |                        | Approved Elective: Western Culture (Core IV) <sup>4</sup>                                 | 3     |
|           | CREDIT HOURS   |                                                              | 15    | CREDIT HOURS           |                                                                                           | 15    |

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3 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.

4 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.

5 To be chosen from an approved list of ISE electives available in the ISE office, CEC 124.

6 To be chosen from an approved list of ISE technical electives available in the ISE office, CEC 124.

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.

APPROVED MATH ELECTIVES

| Code      | Title                                           | Credit Hours |
|-----------|-------------------------------------------------|--------------|
| MATH 2513 | Discrete Mathematical Structures                | 3            |
| MATH 3113 | Introduction to Ordinary Differential Equations | 3            |
| MATH 3333 | Linear Algebra I                                | 3            |
| MATH 3413 | Physical Mathematics I                          | 3            |
| MATH 4433 | Introduction to Analysis I                      | 3            |