

**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 <b>Summer 2023 through Spring 2024</b>

General Requirements	
Minimum Total Credit Hours .....	135
<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 34 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
CHEM 1315	General Chemistry (Core II-Lab) <sup>2</sup>	5
or CHEM 1335	General Chemistry I: Signature Course	
<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, 1865 to the Present	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>		
Choose one course <sup>3</sup>		3
<b>Total Credit Hours</b>		<b>40-50</b>

<sup>1</sup>MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.  
<sup>2</sup>Major support requirements that also satisfy University General Education requirements.  
<sup>3</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.

**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>

<sup>1</sup>List of ISE Electives and is available in the ISE office, CEC 116.

**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
PHYS 2524	General Physics for Engineering and Science Majors	4
<b>Additional College Requirements</b>		
ENGR 1411	Pathways to Engineering Thinking <sup>1</sup>	1
C S 1323	Introduction to Computer Programming for Programmers	3
ENGR 2431	Electrical Circuits	1
ENGR 2461	Thermodynamics	1
ENGR 3441	Fluid Mechanics	1
CEES 2113	Statics	3
CEES 2153	Mechanics of Materials	3
C S 2334	Programming Structures and Abstractions	4
C S 2413	Data Structures	3
6 hours of C S Electives chosen from an approved list <sup>2</sup>		6
<b>Total Credit Hours</b>		<b>41</b>

<sup>1</sup>Engineering transfer students may take ENGR 3511 in place of ENGR 1411.

<sup>2</sup>To be chosen from the C S Elective list available in the ISE office, CEC 116. C S 3203 and C S 4513 are recommended electives.

### 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
	CHEM 1315	General Chemistry ( Core II-Lab ) <sup>1</sup>	5	MATH 2924	Differential and Integral Calculus II <sup>2</sup>	4
	MATH 1914	Differential and Integral Calculus I ( Core I ) <sup>2</sup>	4	HIST 1483 or HIST 1493	United States to 1865 ( Core IV ) or United States, 1865 to the Present	3
	ENGR 1411	Pathways to Engineering Thinking <sup>3</sup>	1	PHYS 2514	General Physics for Engineering and Science Majors ( Core II )	4
		Approved Elective: First-Year Experience (Core V) <sup>4</sup>	3	C S 1323	Introduction to Computer Programming for Programmers	3
	<b>CREDIT HOURS</b>		<b>16</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
	PHYS 2524	General Physics for Engineering and Science Majors	4	C S 2413	Data Structures	3
			MATH 2513	Discrete Mathematical Structures	3	
	<b>CREDIT HOURS</b>		<b>18</b>	<b>CREDIT HOURS</b>		<b>16</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	ENGR 2461	Thermodynamics	1
	P SC 1113	American Federal Government ( Core III )	3	ENGR 3441	Fluid Mechanics	1
				Approved Elective: Artistic Forms (Core IV) <sup>4</sup>	3	
	<b>CREDIT HOURS</b>		<b>19</b>	<b>CREDIT HOURS</b>		<b>18</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
	ENGR 2431	Electrical Circuits	1			
	<b>CREDIT HOURS</b>		<b>16</b>	<b>CREDIT HOURS</b>		<b>15</b>

1 CHEM 1315 can be substituted with CHEM 1335 (Fall only).

2 MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.

3 Engineering transfer students may take ENGR 3511 in place of ENGR 1411.

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 the C S Elective list available in the ISE office, CEC 116.

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.