REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN INDUSTRIAL AND SYSTEMS ENGINEERING/MASTER OF SCIENCE
GALLOGLY COLLEGE OF ENGINEERING
THE UNIVERSITY OF OKLAHOMA

Academic Year	General Requirements	Program
For Students Entering the Oklahoma State System for Higher Education **Summer 2024 through Spring 2025**	Minimum Total Credit Hours ..... **150** **Minimum Retention/Graduation Grade Point Averages:** Overall - Combined and OU ..... **3.00** Major - Combined and OU ..... **3.00** Curriculum - Combined and OU **3.00**	**Industrial and Systems Engineering - Analytics/Industrial and Systems Engineering** **A529/F529** Bachelor of Science in Industrial and Systems Engineering/Master of Science

OU encourages students to complete at least 30 hours of applicable coursework each year to have the opportunity to graduate in 5 years.

Minimum Total Credit Hours: 150

Overall GPA - Combined and OU: 3.00
Major GPA - Combined and OU: 3.00
Curriculum GPA - Combined and OU: 3.00

Program Code: A529/F529

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
Core Area I: Symbolic and Oral Communication		
English Composition		
ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
or EXPO 1213	Expository Writing	
Language (0-10 hours in the same language)		
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)		
Mathematics		
MATH 1914	Differential and Integral Calculus I (Core I) [1, 2]	4
Core Area II: Natural Science (including one laboratory)		
PHYS 2514	General Physics for Engineering and Science Majors (Core II) [2]	4
Natural Science Elective with Lab [4]		4
Core Area III: Social Science		
P SC 1113	American Federal Government	3
Choose one course [3]		3
Core Area IV: Arts & Humanities		
Artistic Forms		
Choose one course [3]		3
Western Culture		
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) [3]		3
World Culture		
Choose one course [3]		3
Core Area V: First Year Experience		
ENGR 1413	Pathways to Engineering Thinking (Core V-FYE) [5]	3
Total Credit Hours		**39-49**

1. MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.
2. Major support requirements that also satisfy University General Education requirements.
3. 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.
4. 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.
5. 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
Required Courses		
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 4663	Systems Analysis Using Simulation	3
ISE 5383	Systems Evaluation [1]	3
ISE 5853	Data-Driven Decision Making II [1]	3
ISE 4393	Capstone Design Project	3
ISE 5033	Systems Engineering [1]	3
or ISE 5813	Advanced Human Factors and Ergonomics	
Total Credit Hours		**54**

[1] These 9 credits are dual-counted, fulfilling requirements for both the undergraduate and graduate Industrial and Systems Engineering degrees.

Major Support Requirements

Code	Title	Credit Hours
Math and Science		
MATH 2924	Differential and Integral Calculus II	4
MATH 2934	Differential and Integral Calculus III	4
MATH 2513	Discrete Mathematical Structures	3
Additional College Requirements		
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 [2]		6
Total Credit Hours		**36**

[2] To be chosen from the C S Elective list available in the ISE office, CEC 124. C S 3203 and C S 4513 are recommended electives.

Graduate Requirements

Thesis Option

Code	Title	Credit Hours
Electives		
Choose 15 hours from a list maintained by the academic unit and approved by the graduate college [1]		15
Thesis		
ISE 5980	Research for Master's Thesis	6
Total Credit Hours		**21**

[1] The thesis option requires 15 hours of electives, from a list maintained by the department and approved by the Graduate College. At least 6 hours must be in Industrial and Systems Engineering. Up to 9 hours may be non-ISE courses.

Non-Thesis Option

Code	Title	Credit Hours
Electives		
Choose 21 hours from a list maintained by the academic unit and approved by the graduate college [1]		21
Total Credit Hours		**21**

[1] The non-thesis option requires 21 hours of electives from a list maintained by the department and approved by the Graduate College. At least 12 hours must be in Industrial and Systems Engineering. Up to 9 hours may be non-ISE courses.

- **NOTE: No more than 6 credit hours of 4000-level graduate courses may be applied to the degree. These courses must be outside ISE and approved for graduate credit. No 3000-level or lower courses may be applied to the degree.**

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

Admission to the accelerated program is by application and requires a minimum OU GPA and combined GPA of 3.25. Students may enter the accelerated program based on the undergraduate degree pattern offered in the year they first enrolled in the Oklahoma State System of Higher Education or later.

Students are eligible for graduate status upon graduation with the Bachelor of Science in Industrial Engineering.

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) [2]	4	MATH 2924	Differential and Integral Calculus II [2]	4
	ENGR 1413	Pathways to Engineering Thinking (Core V-FYE) [3]	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 [1]	4	PHYS 2514	General Physics for Engineering and Science Majors (Core II)	4
				C S 1323	Introduction to Computer Programming for Programmers	3
		CREDIT HOURS	**14**		**CREDIT HOURS**	**17**
SOPHOMORE	MATH 2934	Differential and Integral Calculus III [2]	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
		CREDIT HOURS	**16**		**CREDIT HOURS**	**17**
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) [4]	3
	P SC 1113	American Federal Government (Core III)	3			
		CREDIT HOURS	**19**		**CREDIT HOURS**	**16**
SENIOR	ISE 4333	Production Systems/Operations	3	ISE 4393	Capstone Design Project	3
	ISE 4663	Systems Analysis Using Simulation	3	ISE 5033 or ISE 5813	Systems Engineering 5 or Advanced Human Factors and Ergonomics[5]	3
	ISE 5383	Systems Evaluation [5]	3		Approved Elective: World Culture (Core IV) [4]	3
	ISE 5853	Data-Driven Decision Making II [5]	3		Approved Elective: Social Science (Core III) [4]	3
	C S 4513	Database Management Systems (or other C S Elective) [6]	3		Approved Elective: Western Culture (Core IV) [4]	3
		CREDIT HOURS	**15**		**CREDIT HOURS**	**15**
FIFTH YEAR		ISE 5000-Level Graduate Elective [7]	3		ISE 5000-Level Graduate Elective [7]	3
		Graduate Elective	3		Graduate Elective	3
		Graduate Elective	3		Choose one of the following:	3
		Choose one of the following:	3	ISE 5980	Research for Master's Thesis	
	ISE 5980	Research for Master's Thesis			Graduate Elective	
		Graduate Elective				
		CREDIT HOURS	**12**		**CREDIT HOURS**	**9**

1 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.

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

3 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.

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 These courses are dual-counted, fulfilling requirements for both the undergraduate and graduate Industrial and Systems Engineering degrees.

6 To be chosen from the C S Elective list available in the ISE office, CEC 124

7 Must be approved by the Thesis Committee in accordance with current Master of Science requirements 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.