



SIE 250 Spring 2026 Introduction to Industrial Engineering

Course Description

This course provides an overview of the core areas of Industrial Engineering (IE), including design and manufacturing, operations research, engineering economic analysis, production systems and logistics, and engineering management. Students will explore how industrial engineers address complex challenges across manufacturing and service industries through real-world examples, problem-solving exercises, and systems-thinking case studies.

Instructor and Contact Information

Office Hours (In-person): M-W 3:30 PM to 4:30 PM

Office Hours (In-person) Location: Main Library

Office Hours (online): M-W 4:30 PM to 5:00 PM

Office Hours (online): Book your slots via D2L -

UA Tools -> . zoom -> Appointments -> Schedules

Please note:

Zoom sessions for online consulting need to be self-scheduled via zoom widget on D2L. You are encouraged to meet during these times about anything on your mind. However, if these times do not work with your schedule, other meeting times are available by appointment; please send the request via email.

For In-person meetings, the office location at main library can change as booking may not be available for the same room. Please check this document or watch course notifications on Brightspace regularly for any changes in the office hours information. Current meeting room schedule is available in document: Brightspace -> Content -> Syllabus and References -> SIE250-SP26_ABandimatt_OfficeHours.pdf

Contact Policy:

Email: Your email should include the following Subject Line:

SIE 250 SP26 Student [Question / Request / Notification]. Whether you choose Question, Request, or Notification depends on what you need. Then just ask your question, or make your request, or provide the notification in the text of the email.

Turn Around Time:

I will try to respond as soon as possible, but please allow 24 hours depending on my commitments. You can feel free to follow up if you think you haven't received a response in time. Please note that emails without correct subject line face delays in response.

Course Objectives and Expected Learning Outcomes

This course provides an overview of the core areas of Industrial Engineering (IE), including design and manufacturing, operations research, engineering economic analysis, production systems and logistics, and engineering management. Students will explore how industrial engineers address complex challenges across manufacturing and service industries through real-world examples, problem-solving exercises, and systems-thinking case studies. As an entry point into the IE program at the University of Arizona, the course highlights how subsequent classes build upon these foundations to prepare students for specialization in various domains of the field. By connecting concepts across technical, economic, and human-centered perspectives, students will gain an understanding of how the IE curriculum supports both academic and career development.

- Introduce the foundation of Industrial Engineering.
- Provide students with systems thinking, analytical, and problem-solving tools.
- Highlight applications of ISE across industries (manufacturing, services, healthcare, logistics, etc.).
- Explain the role and scope of Industrial Engineering within organizations and society.
- Apply fundamental principles of work design, systems thinking, and process improvement.
- Use basic tools from operations research, quality engineering, and supply chain management.
- Demonstrate problem-solving skills using engineering economics and decision-making methods.
- Explain how IE principles improve efficiency in systems, organizations, and processes.
- Recognize the interdisciplinary nature of IE, integrating technical, economic, and social sciences.
 - Appreciate the domain-agnostic flexibility of IE and how it creates diverse career opportunities.

Assessments and Distribution

Semester grades use Regular Grades:

- A** 90% - 100%
- B** 80% - 89%
- C** 70% - 79%
- D** 60% - 69%
- E** 0% - 59%

Reference books:

1. "Introduction to Industrial Engineering" (free and online):
<https://open.umn.edu/opentextbooks/textbooks/892>

2. The Industrial Engineering Handbook (free online through the library):
https://arizonaprimo.hosted.exlibrisgroup.com/permalink/f/1h28lag/TN_cd_i_knovel_primary_book_kpHIETOME3
3. Farrokh Sassani, “Industrial Engineering Foundations Bridging the Gap Between Engineering and Management” (free and online)

Assessments and Weighted Distribution

Week(s)	Topics	Assignments
1-2	Work Design & Measurement: work analysis, time and motion studies, productivity metrics	Assignment 1
3-4	Operations Research & Analysis: Optimization, linear programming, decision models	Assignment 2
5-6	Manufacturing, Production & Service Systems; Production types, Lean, Just-In-Time, service systems	Assignment 3
7-8	Engineering Economics & Cost Analysis; Time value of money, cost estimation, break-even analysis. Quality Engineering & Reliability: SPC, Six Sigma, reliability principles	
9	Midterm Exam & Review Covers weeks 1–8	
10-11	Supply Chain & Logistics; Inventory control, supply chain structure, distribution systems Project management (PERT/CPM, Gantt), organizational behavior	Assignment 4
12-13	Simulation, decision support systems, Industry 4.0, data-driven IE System life cycle, integration, risk and resilience	Assignment 5
14-16	Final Project: Case study or applied project in Industrial Engineering	

5 Assignments (max 10 points each): 50%

Midterm exam: 25%

Final project: 25%

Course Format and Teaching Methods

This course integrates lectures, interactive discussions, and collaborative group activities to promote active student engagement. Emphasis will be placed on real-world examples and problem solving exercises to make the material both practical and relevant. Students will have opportunities to work individually and in teams to apply core Industrial Engineering concepts, with particular attention to systems thinking,

probabilistic reasoning, and optimization. The teaching approach is designed to accommodate diverse learning styles while fostering a supportive, engaging, and growth-oriented classroom environment.

Project Due Date and Examination Dates and Times

Final Examination:* Friday, 05/08/2026 from 01:00 PM -03:00 PM

** In-Person courses only. This date / time is set by the Office of the Registrar & states that the policy "As Confirmed by the Faculty Senate: No deviation from the exam schedule, once it is published, is authorized."*

[Official Final Exam Schedule University of Arizona Registrar](#)

Late Work Policy

Availability of submission windows close in Brightspace after the scheduled due dates. Late submissions of assignments is discouraged. Instructor could open specific windows during the semester for the entire class to allow missed assignment submissions with penalty. All submissions need to be made in Brightspace. Submissions over emails and other channels will not be accepted at any cost. Mid-term and final exams need to be taken during the scheduled dates and times.

Course Teaching / Learning Assets

All course assets, including but not limited to videos, slides, activities, projects, and exams, belong to the University of Arizona. Students may not modify content or re-use content for any purpose other than personal educational reasons. All assets are subject to government and university regulations. Therefore, students accessing unauthorized assets or using them in a manner inconsistent with University of Arizona values and educational policies are subject to suspension or civil action.

Class Meeting Recordings

For class meeting recordings, which are used at the discretion of the instructor, students must access the content in D2L only. Students may not modify content or re-use content for any purpose other than personal educational reasons. All recordings are subject to government and university regulations. Therefore, students accessing unauthorized recordings, personally recording a meeting, or using them in a manner inconsistent with University of Arizona values and educational policies are subject to suspension or civil action.

Use of Generative AI

Please note that there is a separate module in this course where we explore responsible use of generative AI for object-oriented analysis. Until this module is discussed, usage of generative artificial intelligence/large-language-models tools, such as ChatGPT, Claude, Copilot, Gemini/Bard, Dall-e, Bing etc., is strongly

discouraged. If you choose to use them, it should only be for non-graded learning and research activities with appropriate acknowledgment and citation, but never for any activity that will be graded like Quizzes, Weekly Reflections, Homework, Exams, Micro-labs or Semester projects. When used for research, information gathering or as a learning tool, be conscious of the learning outcomes from this course. Steer clear of prompts that bypass analytical reasoning and diminish opportunities for critical thinking and problem-solving.

Students are responsible for investigating and deciding the accuracy, credibility, and source of any information they gain from these tools. In the context of semester project or any other group work, every student is responsible to make ensure that no group work is submitted that uses Generative AI resources without proper acknowledgement or citations. Please use the following guidelines for acknowledging/citing Generative AI: [How to cite ChatGPT](#)

Use of these tools for Homework, Exams, Quizzes, Weekly Reflections, Micro-labs or Projects is considered a violation of the Code of Academic Integrity and subject to the most severe sanctions listed in the section below about Code of Academic Integrity. If you are in doubt as to whether you are using Generative AI tools appropriately in this course, I encourage you to discuss your situation with me. Be aware that many AI companies collect information. Do not enter confidential information as part of a prompt. LLMs may make up or hallucinate information. These tools may reflect misconceptions and biases of the data on which they were trained and the human-written prompts used to steer them. You are responsible for checking facts, finding reliable sources for, and making a careful, critical examination of any work that you submit.

Code of Academic Integrity

- Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work / exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: <http://deanofstudents.arizona.edu/codeofacademicintegrity> and http://deanofstudents.arizona.edu/academic_integrity/students/academic-integrity
- The University Libraries have some excellent tips for avoiding plagiarism, available at <http://new.library.arizona.edu/research/citing/plagiarism>.
- Re-distributing class notes and / or other course materials in any way is not permitted without the instructor's express written consent. This includes student notes or summaries that substantially reflect lectures or other materials. These resources are made available only for personal use by students.

- Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions and may also constitute copyright infringement. Course sanctions include notation of the violation(s) on the student's transcript, a failing grade in the course, or revocation of a student's degree, suspension or expulsion from the program, department, college, or University.

Safety on Campus and in the Classroom

For a list of emergency procedures for all types of incidents, please visit the website of the Critical Incident Response Team (CIRT) at <https://cirt.arizona.edu/case-emergency/overview>. Also watch the video available at https://arizona.sabacloud.com/Saba/Web_spf/NA7P1PRD161/common/learningeventdetail/crtfy00000000003560

University Policies

Participating in the course and attending lectures and other course events are vital to the learning process. As such, attendance is required at all lectures. Absences may affect a student's final course grade. If you anticipate being absent, are unexpectedly absent, or are unable to participate in class online activities, please contact instructor as soon as possible. For generic directions and expectations on course participation and approval process for long absences, please refer to the university policies on absence and class participation, threatening behaviour, accessibility and accommodations, academic integrity, and non-discrimination and anti-harassment at <https://academicaffairs.arizona.edu/syllabus-policies>

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, <http://policy.arizona.edu/human-resources/religious-accommodation> policy.

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See:

<https://deanofstudents.arizona.edu/policies/attendance-policies-and-practices>

Accessibility and Accommodations: *"At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience barriers based on disability or pregnancy, please contact the Disability Resource Center (520-621-3268, <https://drc.arizona.edu>) to establish reasonable accommodations."*

Subject to Change Statement

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.