

ENGR 355: Engineering Economics (4 Credits)

Spring 2024 | In-person Class | Edwin A. Stevens 222

Instructor Information

Instructor	Email	Office Location & Hours
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General Information

Description

This course equips students to navigate the critical balance of technical and economic feasibility. Through engineering economics and financial analysis, students learn decision-making skills to excel in project design, implementation, and optimization. Exploring topics like data analysis, interest rates, time value of money, return rates, and cost-benefit analysis, students refine their judgment in selecting optimal technical solutions. By the end, students attain a comprehensive grasp of engineering economics, fully prepared to tackle real-world technical-economic trade-offs.

Learning Outcomes

After successful completion of this course, students will be able to:

1. Analyze and Evaluate Engineering Projects: Utilize Engineering Economic techniques to systematically assess and compare engineering projects, considering both technical and financial factors to make well-informed decisions.
2. Apply Time-Value-of-Money Concepts: Demonstrate a deep understanding of time-value-of-money principles, interest rates, and internal rate of return, enabling precise financial modeling and decision-making in engineering contexts.
3. Navigate Complex Economic Factors: Gain expertise in advanced engineering economy topics such as depreciation, capital cost recovery, after-tax analysis, inflation adjustments, sensitivity analysis, risk assessment, and simulation, allowing students to address real-world challenges with confidence and precision.

Course Format and Structure

This course is offered as an in-person learning mode of instruction. Lectures may be recorded for remote access, but this is not guaranteed. Assignments and exams will be administered in person. All course requirements can be found in Canvas. To access the course, please visit stevens.edu/canvas. For more information about course access or support, contact the TRAC by calling 201-380-6599 or 201-216-5500.

Course Logistics

- Lectures are held on Tuesdays/Thursdays from 11:00 AM - 12:15 PM ET. All lectures are live, attendance is expected, and recordings may be available for personal learning.
- Homework assignments are due on Saturdays at 11:59pm ET on Canvas.
- Exams will be administered in person.

Grades

Unless otherwise stated, grades will be assigned as detailed below. The course is broken into total points all of which carry an equal weight.

Classwork and Homework (16% and 33.4%): There are team-based classwork and homework assignments. Students should submit their classwork and homework assignments as ONE PDF file each on Canvas. No credit will be awarded for assignments emailed to the TA or the professor, or in other format. Students are strongly advised to use the provided CL and HW templates. Assignments must be clear and in good quality in order to be graded. Unreadable documents will not be graded and may receive a zero grade! It is the student responsibility to submit the proper assignment in proper condition. All assignments should contain the students name(s), section, and be pledged. Students are advised to get in touch with the TA with any doubts / clarifications regarding any assignment well before the submission deadline.

Exams (33%): Exams will be administered throughout the semester. Students will have access to a formula sheet(s) via canvas and should ensure they have access to the interest tables available in the back of the book and elsewhere. Students will be allowed to use a calculator. Absolutely no use of any other electronics will be permitted during exams.

Lab (16.6%): The lab section is taught by a different instructor. Direct ALL lab questions to them. The lab portion of this course will be $250/5=50$ points making up 16.6% of your final grade. Please refer to the Lab Manual for more detail on the lab portion of the course.

Extra Credit (1%): Every student gets 3 points automatically. Enjoy!

Grading Breakdown

Item	Quantity	Points	Total Points	% Final Grade
Classwork	8	6	48	16
Homework	8	variable	100	33.4
Exams	3	33	99	33.0
Labs	1	200	200	16.6
Extra credit	-	-	3	1

Grades will be assigned with the following criteria:

Letter Grade	Range
A	100% to 94%
A-	< 94% to 90%
B+	< 90% to 87%
B	< 87% to 84%
B-	< 84% to 80%
C+	< 80% to 77%
C	< 77% to 74%
C-	< 74% to 70%
D+	< 70% to 67%
D	< 67% to 64%
D-	< 64% to 61%
F	< 61% to 0%

Late Policy

- Late discussion questions or assignments are penalized at a rate of 50% per day and will not be accepted after solutions are posted (approximately 1 week after deadline).
- Late exams and projects will not be accepted.
- Extensions must be requested in writing **at least 48 hours** before the deadline.

Exam Policy

The following procedures apply to exams for this course. As the instructor, I reserve the right to modify any conditions set forth below by printing revised Exam Conditions on the quiz or exam.

- You are also allowed to use a calculator.
- You will not be allowed to use any electronic devices (phones, laptops, smart devices, etc.). Students are not allowed to work with or talk to other students during exams.

Academic Integrity

Honor Policy

The Honor System at Stevens was founded on the principals of “academic honesty and fair play in all undergraduate courses.” The stated purpose of the Honor Board is “to promote honor and integrity at Stevens both academically and socially, and to ensure that all submitted work is completed in such a way that all students can be confident in the integrity of the submitted work of their peers.”

Therefore, serious action will be taken if a student (or a group of students) is found to have used unfair means to complete a given assignment. Punitive actions for all assignments under 10% of your final grade will result in a zero on the respective assignments. Further academic impropriety is handled by the Student Honor Board.

Consistent with the above statements, all submitted assignments in Engineering Economics must have the pledge written on the top of the assignment. This pledge signifies that the work submitted by the student is indeed his/her own.

Reference Textbook

- *Engineering Economic Analysis*, 14th Edition, Eschenbach, Ted G., Lavelle, Jerome, P., Newnan, Donald G., Oxford University Press, ISBN: 978-0-19-093191-9

Course Requirements

Attendance: Attendance to lectures is expected. Please contact the instructor in writing to be excused from lecture.

Homework: Homework assignments must be submitted on Canvas by 11:59pm ET on the due date. **Extensions must be requested in writing at least 48 hours before the deadline. Copying code, scripts, programs, saved models, or answers from others will not be tolerated and will result in a 0 for the assignment and referral to the Office of Graduate Academics.**

LEARNING ACCOMMODATIONS

Stevens Institute of Technology is dedicated to providing appropriate accommodations to students with documented disabilities. The Office of Disability Services (ODS) works with undergraduate and graduate students with learning disabilities, attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, psychiatric disorders, and other such disabilities in order to help students achieve their academic and personal potential. They facilitate equal access to the educational programs and opportunities offered at Stevens and coordinate reasonable accommodations for eligible students. These services are designed to encourage independence and self-advocacy with support from the ODS staff. The ODS staff will facilitate the provision of accommodations on a case-by-case basis.

For more information about Disability Services and the process to receive accommodations, visit <https://www.stevens.edu/office-disability-services>[Links to an external site.](#). If you have any questions please contact: Phillip Gehman, the Director of Disability Services Coordinator at Stevens Institute of Technology at pgehman@stevens.edu or by phone 201-216-3748.

Disability Services Confidentiality Policy

Student Disability Files are kept separate from academic files and are stored in a secure location within the Office of Disability Services. The Family Educational Rights Privacy Act (FERPA, 20 U.S.C. 1232g; 34CFR, Part 99) regulates disclosure of disability documentation and records maintained by Stevens Disability Services. According to this act, prior written consent by the student is required before our Disability Services office may release disability documentation or records to anyone. An exception is made in unusual circumstances, such as the case of health and safety emergencies.

INCLUSIVITY

Name and Pronoun Usage

As this course includes group work and class discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect. This includes the ability for all students to

have their chosen gender pronoun(s) and chosen name affirmed. If the class roster does not align with your name and/or pronouns, please inform the instructor of the necessary changes.

Inclusion Statement

Stevens Institute of Technology believes that diversity and inclusiveness are essential to excellence in academic discourse and innovation. In this class, the perspective of people of all races, ethnicities, gender expressions and gender identities, religions, sexual orientations, disabilities, socioeconomic backgrounds, and nationalities will be respected and viewed as a resource and benefit throughout the semester. Suggestions to further diversify class materials and assignments are encouraged. If any course meetings conflict with your religious events, please do not hesitate to reach out to your instructor to make alternative arrangements.

You are expected to treat your instructor and all other participants in the course with courtesy and respect. Disrespectful conduct and harassing statements will not be tolerated and may result in disciplinary actions.

MENTAL HEALTH RESOURCES

Part of being successful in the classroom involves a focus on your whole self, including your mental health. While you are at Stevens, there are many resources to promote and support mental health. The Office of Counseling and Psychological Services (CAPS) offers free and confidential services to all enrolled students who are struggling to cope with personal issues (e.g., difficulty adjusting to college or trouble managing stress) or psychological difficulties (e.g., anxiety and depression). Appointments can be made by phone (201-216-5177).

EMERGENCY INFORMATION

In the event of an urgent or emergent concern about the safety of yourself or someone else in the Stevens community, please immediately call the Stevens Campus Police at 201-216-5105 or on their emergency line at 201-216-3911. These phone lines are staffed 24/7, year round. For students who do not reside near the campus and require emergency support, please contact your local emergency response providers at 911 or via your local police precinct. Other 24/7 national resources for students dealing with mental health crises include the National Suicide Prevention Lifeline (1-800-273-8255) and the Crisis Text Line (text "Home" to 741-741). If you are concerned about the wellbeing of another Stevens student, and the matter is *not* urgent or time sensitive, please email the CARE Team at care@stevens.edu. A member of the CARE Team will respond to your concern as soon as possible.