

IEEN 2302.001 Engineering Economics
Department of Engineering
Fall 2025

A. COURSE INFORMATION

Course number/section: IEEN 2302.001
Class meeting time: MWF 08:00-08:50 AM
Class location: CS-108
Course website: <https://canvas.tamucc.edu>

B. INSTRUCTOR INFORMATION

Instructor: Lichuan Ren
Office location: RFEB 312
Office hours: MW 09:00 – 11:30 AM
e-mail: lichuan.ren@tamucc.edu
Appointments: Appointments are made through e-mail

C. COURSE DESCRIPTION

Catalog Course Description

Engineering management relies on the knowledge of engineering economics to be able to evaluate projects from a financial perspective. Optimizing the financial performance of a project is a key responsibility of the engineer in the decision-making process. Examples of engineering projects would include but not limited to equipment replacement analysis, planning a new product line, and waste management. This course is designed to present engineering students the major concepts and techniques of engineering economic analysis that are needed in the decision-making process. The emphasis of this course is on the analytical analysis of money and its impact on decision-making.

D. PREREQUISITES AND COREQUISITES

Prerequisites / Corequisites

MATH 2413-Calculus I

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES**Optional Textbook(s) or Other References**

Engineering Economy (9th Edition)

by Leland T. Blank (Author), Anthony Tarquin (Author)

ISBN-13: 9781264158096

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course's student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

- Define and provide examples of the time value of money.
- Demonstrate the effects of depreciation, income taxes, inflation, and price change on engineering economic analysis problems.
- Solve economic problems involving comparison and selection of alternatives by using a variety of analytical techniques, including present worth analysis, annual worth analysis, future worth analysis, rate of return analysis, benefit-cost ratio, sensitivity and breakeven analyses, and payback period analysis.
- Use EXCEL spreadsheets and financial functions to model and solve engineering economic analysis problems.

G. MAJOR COURSE REQUIREMENTS AND GRADING

ACTIVITY	% of FINAL GRADE	TIMED	OPEN BOOK	SUBMISSION
Homework (HW)	30	Not Timed	Open Book	Canvas
Quiz 1	15	Timed	Open Book	In person
Quiz 2	15	Timed	Open Book	In person

Projects (Excel-based)	15	Not Timed	Open Book	Canvas
Final Exam	25	Timed	Open Book	In person

TOTAL SCORE	TENTATIVE GRADE
≥ 90	A
$< 90 \text{ and } \geq 80$	B
$< 80 \text{ and } \geq 70$	C
$< 70 \text{ and } \geq 60$	D
$< 60 \text{ or Missing class more than 5 times}$	F

H. COURSE CONTENT/SCHEDULE

DATE (BY DAY OR WEEK)	TOPIC	ASSIGNMENTS
Week 1	Ch 1. Foundations of Engineering Economics	
Week 2	Ch 2. Factors: How Time and Interest Affect Money (P and F)	
Week 3	Ch 2. Factors: How Time and Interest Affect Money (A and Gradients)	HW 1
Week 4	Ch 3. Combining Factors and Spreadsheet Functions	Project 1
Week 5	Ch 4. Normal and Effective Interest Rate	HW 2
Week 6	Ch 5. Analysis using Present Worth and Future Worth Values	Quiz 1
Week 7	Ch 6. Annual Worth Analysis	HW 3
Week 8	Ch 7. Rate of Return Analysis: One Project	Project 2
Week 9	Ch 8. Rate of Return Analysis: Multiple Alternatives	
Week 10	Ch 9. Benefit/Cost Ratio	HW 4
Week 11	Ch 11. Replacement and Retention Decisions	Quiz 2
Week 12	Ch 13. Breakeven and Payback Analysis	HW 5
Week 13	Ch 14. Effects of Inflation	Project 3

Week 14	Project and Review	Final Exam
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Note: Changes in this course schedule may be necessary and will be announced to the class by the instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

I. COURSE POLICIES

Attendance

You are advised to attend all lectures. If you miss a class, you are responsible for whatever is covered or announced during your absence.

The students are expected to display responsible conduct in the classroom, including but not limited to adhering to the rules and regulations and respecting the instructor and fellow classmates.

Late Submissions

Deadlines for each assignment will be provided when the assignment is released. All assignments must be submitted through the Canvas online system. Late submissions will incur a penalty of 10% per day.

Grades

1) Homework:

Five homework assignments will be given throughout the course. Each assignment accounts for 6% of your final grade, making the total contribution of homework to your final grade 30%.

2) In-class Quizzes:

There will be two in-class quizzes. They are **open book, open note, and you may refer to course materials on Canvas**. However, you are **not allowed to access the internet or use AI tools**. Each quiz accounts for 15% of the final grade.

3) Final Exam:

The final exam is cumulative. It is also **open book, open note, and Canvas materials are allowed**, but **internet access and AI tools are prohibited**. The final exam accounts for 25% of the final grade.

4) Course Projects:

The course projects are designed to use Excel spreadsheets to tackle some more realistic and computationally complicated problems. The course projects account for 15% of the final grade.

Extra Credit

Extra credit may be assigned at the discretion of the instructor.

Computer Use

This course requires the use of the Microsoft Excel spreadsheet. Therefore, students are expected to have access to a computer. If access to a computer is not available, students should notify the instructor as soon as possible. Computers are required for projects and can be used for homework assignments, but are not allowed for exams.

J. COLLEGE AND UNIVERSITY POLICIES**COVID-19 Campus Safety Measures**

While the University does not require face coverings or vaccinations, we encourage every Islander to consider getting vaccinated, wear a face covering while indoors, and wash your hands frequently to aid in reducing the spread of COVID-19.

Anyone with COVID-19 [symptoms](#) should not report to campus. Students, faculty, and staff who test positive are required to report their test results to the University [Covid-19 Reporting Form](#).

Please use the below links for COVID-19 guidelines:

[**If You Test Positive, Regardless of Vaccination Status**](#)

[**If you are exposed to Someone with COVID-19**](#)

[**If you have Symptoms Regardless of Vaccination Status**](#)

Complete the COVID-19 [Self Reporting Form](#) and notify instructor.

More COVID-19 related information may be found on the university website at
<https://www.tamucc.edu/campus-guide/covid-protocol.php>

Campus Emergencies*

At TAMU-CC, your safety is a top concern. We actively prepare for natural disasters or human-caused incidents with the ultimate goal of maintaining a safe and secure campus.

- For any emergency, dial the University Police Department (UPD) at **361-825-4444** or dial 911. It's a good idea to have the UPD emergency number (and non-emergency number 361-825-4242) saved in your cell phone.

- There are nearly 200 classroom telephones throughout campus. If you feel threatened or need help and don't have a cell phone, dial 4444 (emergency) or 4242 (non-emergency) to be connected to UPD.
- If we hear a fire alarm, we will immediately evacuate the building and proceed to Angel Fish Lot.
 - Proceed to the nearest building exit or evacuation stairway. Do not use the elevator. Persons who need help navigating stairs should proceed to a marked Area of Rescue Assistance, if possible.
 - Persons with disabilities should speak with their faculty about how to best assist them in case of an emergency.
 - Review the evacuation route (see specific Building Emergency Plan).
- TAMU-CC employs the Code Blue Emergency Notification System, an alert system which connects the campus community during emergency situations.
 - The notifications include emails, text, and pre-recorded messages, as appropriate.
 - Code Blue emergencies may include severe weather warnings, threats, school closures, delays, evacuations, and other incidents which disrupt regular campus activities.
 - Students can update personal contact information anytime at <https://emergency.tamucc.edu/contactform/>.
- Shelter in Place via Code Blue.
 - "Shelter-in-place" means to take immediate shelter where you are and may be implemented for severe weather, hazardous material spills, active shooters, or other dangerous situations.
 - If there is a shelter in place for a **tornado warning**, our preferred location is the bottom floor of this building, away from windows and doors.
- Active Threat Protocol. There are three things you could do that make a difference if there is an active threat: Run, Hide, and/or Fight. For more information about the Run, Hide, Fight protocol, including what to do when law enforcement arrives, visit **page 6** of the Quick Reference Guide to Campus Emergencies <https://www.tamucc.edu/finance-and-administration/facility-administration/ehs/emergency-management/assets/documents/finalbooklet.pdf>

<https://www.tamucc.edu/faculty/faculty-affairs/assets/syllabi-statements.pdf>

For the *Quick Campus Guide to Campus Emergencies* (including a list of Areas of Rescue Assistance and additional protocols on assisting persons with physical disabilities, hurricanes, bomb threats, animal bites, crime reporting, elevator entrapment, etc.), visit <https://www.tamucc.edu/finance-and-administration/facility-administration/ehs/emergency-management/assets/documents/finalbooklet.pdf>.

- **Academic Integrity (University)**

University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to

penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity, or plagiarism. (Plagiarism is the presentation of the work of another as one's own work.) In this class, academic misconduct, or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

- **Permit AI with Conditions (University)**

- As a part of this course, students may have the opportunity to interact with AI tools, such as ChatGPT, for educational purposes. These tools can provide valuable insights and assistance in understanding course material, generating ideas, and enhancing learning experiences. However, it's important to note that while AI tools can be helpful, they are not a substitute for critical thinking, creativity, and human judgment. Students are expected to use AI tools responsibly, acknowledge their limitations, and critically evaluate the information provided by these tools. It's also crucial to consider ethical considerations, such as bias and privacy when using AI assistance in this course or any other educational context. The use of AI tools should align with the course objectives and policies, and students should always properly cite and acknowledge the use of AI tools in their work. The instructor will provide guidance and support on the responsible use of AI assistance, and students are encouraged to seek clarification or raise any concerns they may have regarding the use of AI tools.

- **Generative AI:** This course (will use or allows usage of) generative AI tools, such as ChatGPT or OpenAI API for instructional use, assignments, and projects. Use of shared accounts is not permitted.

- **Using Generative AI Tools:** Use of generative AI tools is allowed as assistive learning tools to understand and clarify concepts or simplify labor-intensive tasks; however, such tools do not replace research, use and citation of reputable original sources of work, such as books, journal articles, patents, and other as relevant to this course; nor does use of such tools replace critical thinking, analysis and interpretation of results by the student. Students are responsible for their academic integrity when representing their knowledge and skills when using such tools and other sources.

- **Permit AI (University)**

- We recognize that various AI tools are available to assist with different tasks. It must be underlined that these are not a substitute for human knowledge, logic, and critical thinking. As our class focuses on developing a foundational understanding of computing and programming, using such tools cannot contribute positively to your skills. Therefore, using AI tools to get academic credit is prohibited in this class, and any violation will be considered a breach of TAMU-CC's Student Code of Conduct.
- The use of artificial intelligence (AI) or other automated writing tools to complete assignments is strictly prohibited in this class. Any evidence of the use of AI will be considered a violation of academic integrity and will be met with a failing grade for the assignment and may result in further disciplinary action. It is the responsibility of each

student to ensure that all work submitted for this class is their own original work, written and completed without the use of AI or other automated writing tools.

- **Special Note:** If the instructor suspects that a student engaged in academic dishonesty, cheating, and/or plagiarism for any of the course's assessments involving the use of third party individuals, groups, or technology (e.g., unpaid outsourcing, traded goods or services, paid goods or services, artificial intelligence and related machine learning systems, programs, software, applications/apps, etc.), the student will be required to have an in-person oral defense of the subject matter, content, format, resources, etc. with the instructor and another university faculty member or administrator present to determine the veracity and reliability of the student's work and mastery of material. Based on the results of the oral defense, consequences for academic dishonesty, cheating, and plagiarism include, but are not limited to, a failing grade for an assignment, a failing grade for the course, noncredit for an assignment, additional work, and/or direct referral to university officials.
- **Respect for yourself and your education:** I will strongly enforce the University's academic misconduct policies (for more information see section on academic misconduct). Collaboration or discussion about individual assignments with other persons, artificial intelligence, websites, or applications other than your instructor or other persons/materials approved by your instructor is considered cheating. As part of your introduction to the course, you will complete the CITI Plagiarism Training Module— more information on this is located on the course Canvas site. Sharing of course content or materials may also result in copyright infringement and will be considered a breach of academic conduct.
- **Undergraduate and Graduate**

The intent of academic integrity is to present your own original work on all assignments. Examples of Academic Integrity Violations include, but are not limited to, the following:

- (1) Copying and pasting from the internet, without attribution,
- (2) Copying and pasting from the textbook or other sources, without attribution,
- (3) Using Artificial Intelligence applications to write, enhance, or alter your exam or assignment,
- (4) Using Grammarly Go to write, enhance, or alter your exam or assignment,
- (5) Forwarding your exam or assignment to another person for review and/or alteration,
- (6) Paying a person, organization, or website to originate, review, write, or contribute to your exam or class assignment,
- (7) Using unauthorized materials while taking an exam,
- (8) Discussing an individual exam or assignment with another when not permitted, and
- (9) Assisting another student by any of these means.

Undergraduate

- **Generative AI Tools:** Students may not use ChatGPT or any other similar generative AI tool programs to write any course assignments. Assignment files uploaded to Turnitin are checked for likelihood of being written with an AI program. Any student assignment Turnitin reports to be likely prepared by an AI program will be uploaded to ZeroGPT or a similar program. If that program likewise identifies the assignment as likely prepared by an AI program, the assignment will receive a zero score.
- **Classroom/Professional Behavior**
Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor's ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VIII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.
- **Statement of Civility**
Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high-quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state, and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation, or disability. Behaviors that infringe on the rights of another individual will not be tolerated.
- **Deadline for Dropping a Course with a Grade of W (University)**
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. *Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course.* Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the registrar's office in the University Center 324 and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. You may also submit a [PowerFormSigner](#) online. November 7 is the last day to drop a class with an automatic grade of "W" this term.
- **Grade Appeals**
As stated in University Procedure [13.02.99.c0.03](#), Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as

outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is required to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C0.03, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at <https://www.tamucc.edu/faculty/faculty-affairs/assets/student-grade-appeal-packet.pdf>. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Engineering & Computer Science Dean, or the Office of the Provost. <https://www.tamucc.edu/faculty/faculty-affairs/assets/syllabi-statements.pdf>

- **Disability Services**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

<https://www.tamucc.edu/faculty/faculty-affairs/assets/syllabi-statements.pdf>

- **Civil Rights Complaints**

Texas A&M University-Corpus Christi is committed to fostering a culture of caring and respect that is free from discrimination, relationship violence and sexual misconduct, and ensuring that all affected students have access to services. For information on reporting Civil Rights complaints, options and support resources (including pregnancy support accommodations) or university policies and procedures, please contact the University Title IX Coordinator, Rosie Ruiz, at Rosie.Ruiz@tamucc.edu ext. 5826, or visit website at [Title IX/Sexual Misconduct/Civil Rights](#).

Limits to Confidentiality. Essays, journals, and other materials submitted for this class are generally considered confidential pursuant to the University's student record policies. However, students should be aware that University employees, including instructors, are not able to maintain confidentiality when it conflicts with their responsibility to report alleged or suspected civil rights discrimination that is observed by or made known to an employee in the course and scope of their employment. As the instructor, I must report allegations of civil rights discrimination, including sexual assault, relationship violence, stalking, or sexual harassment to the Title IX Coordinator if you share it with me.

These reports will trigger contact with you from the Civil Rights/Title IX Compliance office who will inform you of your options and resources regarding the incident that you have shared. If you would like to talk about these incidents in a confidential setting, you are encouraged to make an appointment with counselors in the University Counseling Center.

<https://www.tamucc.edu/faculty/faculty-affairs/assets/syllabi-statements.pdf>

- **Statement of Academic Continuity**

In the event an unforeseen academic disruption, such as a major hurricane, prevents class from being held on the campus of Texas A&M University-Corpus Christi; this course would continue via Canvas and/or university email. In addition, the syllabus and class activities may be modified to allow continuation of the course. University email accounts will be the official mode of communication for this course and campus announcements. Students should be checking their university email account and opt into the University Code Blue emergency alert system.

K. OTHER INFORMATION

- **Academic Advising**

The College of Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College's Academic Advising Center is located in the Faculty Center 148 or can be reached at (361) 825-3401.

GENERAL DISCLAIMER

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.