SYLLABUS
MENG 3003-WX1: ENGINEERING ECONOMICS
(Required Course)
Spring 2024

Instructor: Dr. Mahmoud Elsharafi

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Office Hours: Online

Course Schedule: Online

Class Location: Online

CATALOG DESCRIPTION
The time value of economic resources such as cash flow diagrams, simple and compound interest, present worth, future worth, equal payment series, and the economic evaluation of engineering projects.

COURSE PRE-REQUISITES
MATH 1233

REQUIRED TEXTBOOK
Engineering Economy, by L. Blank and A. Tarquin, 8th edition, McGraw Hill.

TOPICS COVERED
- Introduction, terminology, basic concepts
- Economy factors, single payment, present and future worth
- Combining factors
- Nominal and effective interest rates
- Economic evaluation of engineering projects via basic analysis tools.

Additional material may be covered as time permits.

GRADING
The overall grade for the course will be based on the scores earned on the homework assignments, exams, and final report. The homework assignments account for 10% of the

course grade, exams account for 75% of the course grade, Final Report for 15%, and the overall score for the course is determined as follows.

Table 1: Percentage contribution of each assignment.

Assignments	Contribution
Test 1	25%
Test 2	25%
Final Exam	25%
Homework	10%
Final Report	15%
TOTAL	100%

COURSE ORGANIZATION AND ASSESMENT

- **Course Format:**
  Online independent study class. Class will cover the relevant topics for that particular class.

- **Homework Evaluation Method:**
  Your performance will be tested regularly throughout the semester by homework assignments. While several homework problems may be assigned as part of a homework assignment, it may be the case that only a subset of problems will be graded. However, you must attempt all problems. ***Do not try to guess which (if any) problems will not be graded.***

- **Late Assignments:**
  Homework assignments must be turned in ***on the due date, at the beginning of class.*** Once class starts, late assignments will ***NOT*** be accepted.

- **Exam Make-up:**
  You are expected to take all exams on the scheduled date and time. However, if for some acceptable reason you are not able to do so, then you must inform the instructor in advance. The instructor will then decide whether you will be allowed to take a make-up exam, depending on the validity of your excuse.

- **Final Report for Selected Project**
  Write a report on a topic related to the course by typing. The report should be typed and Posted on the Dropbox through D2L. The report should be at least 5 pages. Please prepare the report in APA style, which can be found at www.apastyle.org.The final report and presentation will be graded based on the following criteria:
  - ✓ The final Report most show the ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental, and economic factors as following:

a) Identify if your design (storage, experimental set-up, etc…) take into consideration the public health, safety, and welfare of the people.
b) Identify if your teammates showed respect and understanding for cultural and social status differences within the project group.
c) Identify if your solution take into consideration the impact of your design on the global environmental issues.
d) Identify if your solution take into consideration the impact of your design on the global economic issues.

- **General Study Guidelines:**
  Plan on spending few hours outside of class each week to study the material and to work on homework assignments. Do not wait until the last day to start the homework or to prepare for exams. Utilize office hours throughout the semester whenever you need help about the assignments or the course material. Although you are strongly encouraged to study in a group, you must work individually when solving homework problems.

GENERAL EDUCATION STATEMENT
Students in this course must demonstrate their proficiency in oral and written communication through written homework assignments and exams.

ACADEMIC INTEGRITY POLICY
Scholastic dishonesty will not be tolerated and will be prosecuted to the fullest extent. You are expected to have read and understood the current issue of the student handbook regarding student responsibilities & rights, and the intellectual property policy information about procedures and what constitutes acceptable on-campus behavior.

DISABILITY SUPPORT SERVICES
If you have a documented disability that will impact your work in this class, please contact me to discuss your needs.

DISCLAIMER STATEMENT
Information contained in this syllabus, other than grading policies, may be subject to change with advance notice, as deemed appropriate by the instructor.

CAMPUS CARRY
Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. The new Constitutional Carry law does not change this process. Concealed carry still requires a License to Carry permit, and openly carrying handguns is not allowed on college campuses. For more information, visit Campus Carry.

ACTIVE SHOOTER
The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by MSU Police Department regarding the options and strategies we can all use to stay safe during difficult situations. For

more information, visit [Safety / Emergency Procedures](#). Students are encouraged to watch the video entitled "*Run. Hide. Fight.*" which may be electronically accessed via the University police department's webpage: *["Run. Hide. Fight."](#)*

MIDTERM REPORT

In order to help students I will keep track of their progress toward course objectives, then I will provide a Midterm Progress Report through each student's WebWorld account. Midterm grades will not be reported on the students' transcript; nor will they be calculated in the cumulative GPA. They simply give students an idea of where they stand at the midpoint of the semester. Students earning below a C at the midway point should schedule a meeting with the professor.

COURSE LEARNING OBJECTIVES AND RELATIONSHIP TO STUDENT OUTCOMES

Table 2: Course learning objectives related to the ABET criteria (1-7)

Outcome-Related Course Learning Objectives	1	2	3	4	5	6	7
Given a relevant problem, students will create the appropriate cash flow diagram.	X	X					
Given a relevant problem, students will be able to set up solution equations using factors for present worth.	X	X					
Given a relevant problem, students will be able to set up solution equations using factors for future worth.	X	X					
Given a relevant problem, students will be able to set up solution equations using factors for uniform series.	X	X					
Given a relevant problem, students will be able to set up solution equations using factors for gradients.	X	X					
Students will be able to differentiate between nominal and effective interest rates.	X	X					
Given a relevant scenario, students will discuss and/or analyze and/or carry out an economic evaluation of a simple engineering project.	X	X		X			

1. The ability to identify, formulate, and solve complex engineering problems by applying the principles of engineering, science, and mathematics.
2. The ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental, and economic factors.
3. The ability to communicate effectively with a range of audiences.

4. The ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

5. The ability function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

6. The ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions.

7. The ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Conflict Resolution

a. The student should contact the instructor face to face or via e-mail if there is an issue with the course or the instructor. The faculty and the student will discuss this face to face or via email. Hopefully a resolution is reached on the issue.

b. The student should notify the faculty via email again if the issue still did not get resolved after the first encounter or communication.

c. The student can then contact the Chair of the McCoy School of Engineering, Dr. Desai, face to face or via email, (raj.desai@msutexas.edu), and discuss this issue. Dr. Desai will discuss the issue at hand with the faculty member. Dr. Desai will discuss the result of this discussion with the student. Hopefully a resolution is reached on the issue after this.

d. The student should notify the Chair via email if the issue still did not get resolved.

e. The Chair will contact the Dean and try to resolve the conflict. In case the conflict deals with the student grade, she will forward the case to the Grade Appeals Committee if necessary.

Texas Tech University: Since writing, analytical, and critical thinking skills are part of the learning outcomes of this course, all writing assignments should be prepared by the student. Developing strong competencies in this area will prepare you for a competitive workplace. Therefore, AI-generated submissions are not permitted and will be treated as plagiarism.

- **Student Resources**
  https://msutexas.edu/academics/scienceandmath/student_resources.php

Prepared by Mahmoud Elsharafi, December,16, 2023.