

ISE 307 – Engineering Economic Analysis
Summer 2025 – Term 253 – Section 01 & F03

*Industrial and Systems Engineering Department
College of Computing and Mathematics
King Fahd University of Petroleum and Minerals*

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1. Catalog Description:

Introduction to concepts of economic decision-making from a cash flow viewpoint. It includes present worth analysis, cash flow equivalence, rates of return, replacement analysis, benefit-cost analysis, depreciation and taxes, and projects break-even point, selection, and sensitivity analysis.

2. Prerequisites: Junior standing.

3. Textbook: Chan Park, *Fundamentals of Engineering Economics*, 3rd Ed, Prentice Hall, 2013.

4. Other References:

- White, J., Case, K., and Pratt, D., *Principles of Engineering Economic Analysis*, 6th Edition, John Wiley and Sons. Inc., New York, 2012.
- Newnan, D., Eschenbach, T., Lavelle, J., *Engineering Economic Analysis*, 13th Edition, Oxford University Press, 2017.
- Blank, L. T., & Tarquin, A. J. *Engineering economy*, 7th Edition, McGraw Hill, 2012

5. Instructional Methods: The course will be taught through *lectures, homework, and in-class assignments and discussions*.

6. Objective: The course is designed to cover basic concepts of engineering economics and aims at achieving the following:

1. Develop students' awareness of the concepts of cash flow approach, time value of money, product/project costing and rate of return.
2. Introduce students to the process of integrating engineering proposals with economic analysis to select among several viable alternative projects.
3. Understand and appreciate the models and measures used in decision-making in the area of engineering economics.

7. Learning Outcomes: Upon successful completion of this course, students should be able to:

1. Identify key parameters that affect project performance based on sensitivity analysis (6),
2. Apply decision making procedures for selecting engineering projects (1),
3. Compute the impact of interest rate compounding, inflation, depreciation, cost-benefit analysis and other economic factors on projects' feasibility (1),
4. Assess the economic feasibility of investments related to engineering projects (1, 6), and
5. Evaluate policies for assets replacement (2).

8. Course Outline:	Chapter
Engineering Economic Decisions	1
Time Value of Money	2
Understanding Money Management	3
Equivalence Calculations under Inflation	4
.....Major Exam I	
Present worth Analysis	5
Annual Equivalent Analysis	6
Rate-of-Return Analysis	7
.....Major Exam II	
Depreciation and Income Taxes	9
Handling Project Uncertainty	11
Replacement Decisions	12
.....Final Exam	

9. Grading Policy:

Attendance and Participation	5%
Homework	10%
Classwork and Quizzes	10%
Major Exam I	25%
Major Exam II	25%
Final Exam	25%

10. Letter grades are assigned using standard cutoffs: A+: 95–100, A: 90–94, B+: 85–89, B: 80–84, etc., *with some adjustment reserved at the end based on all-section performance.*

11. Attendance is recorded using pre-class quiz submitted before class time AND in-class activities participation. Students are given two free absences (without penalty); 1.25 marks penalty for each absence after that. DN grade is automatically assigned upon the 6th unexcused absence. Any excuses must be official from the student affairs office

12. Academic Integrity

- All quizzes and exams are student's individual work (zero tolerance for cheating). See <https://registrar.kfupm.edu.sa/faculty-resources/guidelines-for-facultystudents-for-conducting-exams-at-kfupm/>
- Homeworks and in-class activities can be completed in groups, but the work must be completed individually
- Any indication of plagiarism or cheating will result in 0 and official report

13. Assignments

- ALL assignments are graded and weighted based on the grading policy
- If you scored between 5%-95% in a homework or quiz, you may take makeup assignments within a week after the grade is posted (and may receive a maximum score of 95% of the original full scores)
- No makeup assignments if you did not submit HWs or quizzes entirely
- No makeup attendance (for missing pre-class quizzes or in-class activities)

- e) You may submit late assignments (up to 48 hours after the deadline) but they will be penalized by 20% per day
- f) If you have any valid official excuses for missing a class or HWs or quizzes, send me an email before the deadline so you will not be penalized for the late submission

14. Communication and Conduct

- a) All assignments must be in English, with proper academic formatting
- b) Our main communication channel is email (not MS Teams)
- c) For extra office hours, make an appointment
- d) Regrading requests must be submitted in writing, within a week after the grade is posted

15. Wellbeing: Please take care of your mental and physical health. If you feel overwhelmed, stressed, or anxious, please let me know and seek proper help from the university resources. Above all else, our goal is to provide a safe and respectful learning environment for everyone. Please be respectful of others and yourself.

Last updated: 13 June 2026