



ChE 401: Engineering Economy

2 credit hour, 2 contact hour lecture, 2 credit hour Eng.

Instructor

Instructor: Eng. Salaheddin Abu Yahya

E-mail: seabuyahya@just.edu.jo

Textbooks & References

A. Textbook

	Textbook 1
Title	Engineering Economy
Author(s)	Leland Blank, P.E. and Anthony Tarquin, P.E
Publisher	McGraw Hill
Year	2012
Edition	7 th edition

B. References

1. J. R. Cooper and W. H. Rader, “**Applied Finance and Economics Analysis for Scientists and Engineers**”, Van Nostrand Reinhold Co Inc., 1986.
2. Gerald J. Thuesen and W. J. Fabrycky “**Engineering Economy**”, 9th Prentice Hall, 2001.
3. M. S. Peters and K. D. Timmerhaus, “**Plant Design and Economics for Chemical Engineers**”, 4th edn., McGraw Hill, 1991.
4. Grant/ Ireson/ Leavenworth, “**Principles of Engineering Economy**”, 8th edn., Wiley, 1990.
5. E. P. Degarmo, W. G. Sullivan, and J. A. Bonttadelli, “**Engineering Economy**”, 8th edn., 1989.
6. W. G. Sullivan, E. M. Wicks, and C. Patrick Koelling, "Engineering Economy", 14th edition, Prentice Hall, 2009.
7. G. J. Thuesen and W. J. Fabrycky, Hamdy (2001). *Engineering Economy, 9th edition*. Prentice Hall International edition.

Specific Course Information

A. Course Catalog:

Familiarize the student with economics concepts: supply and demand relations, interest and investment costs, taxes, insurance, depreciation, inflation, cash flow, profitability measures, estimation of unit operation and production cost, feasibility studies, and decision analysis.

B. Prerequisites or co-requisites

ChE 362 Unit Operations

C. Required/Elective or Selected Elective

Required

Objectives and Outcomes*

1. Understand and apply fundamental concepts and use the terminology of engineering economy. [4]
2. Derive and use the engineering economy factors to account for the time value of money. [1,2,4]
3. Use multiple factors to find equivalent amounts for cash flows that have nonstandard placement. [1,4]
4. Make computations for interest rates and cash flows that are on a time basis other than a year. [1,4]
5. Utilize different present worth techniques, annual worth techniques to evaluate and select alternatives. [1,4,6]
6. Understand the meaning of rate of return and perform ROR evaluation of a single project. [1,4,6]
7. Determine the breakeven for one or two alternatives and calculate the payback period with and without a return required. [1,2,4]
8. Understand concept of depreciation and estimate the depreciation using SL, DBD and MACRS methods. [1,2,4]
9. Perform an after-tax economic evaluation considering the impact of pertinent tax regulations, income taxes, and depreciation. [1,2,4]

Contribution of Course to Meeting the Professional Component

Relationship to Student Outcomes (%)

1	2	3	4	5	6	7
35	35		20		10	

Relationship to Chemical Engineering Program Objectives

PEO1	PEO2	PEO3	PEO4	PEO5	PEO6
X	X	-	-	-	-

Topics Covered

1. Introduction & basic principles of Engineering Economy.
2. Time Value of Money & Interest Rate.
3. Evaluating Alternatives
4. Breakeven and Payback Analysis
5. Depreciation
6. After Tax Economic Analysis

Evaluation

Assessment Tool	Expected Due Date	Weight
Homework & Quizzes	One week after homework problems are assigned	10%
First Exam	According to the department schedule	25 %
Second Exam	According to the department schedule	25%
Final Exam	According to the University schedule	40 %

* Number in brackets refer to the Program outcomes