

SUBJECT: IE 302 ENGINEERING ECONOMY Credit : 3 (3-0) Major Course

JUNE 2005 - SEPTEMBER 2005

First Semester

Lecturer: Busaba Phruksaphanrat
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Prerequisite: -

Class Hours: Sec.0700 Wednesday and Friday 9.30-11.00

Objective: After attend the course, the students should

1. understand the concept and definition of engineering economy.
2. be able to make engineering economy computations using interest periods and compounding frequencies.
3. be able to determine equivalent cash flow by using economy methods.
4. be able to calculate rate of return and able to use rate of return technique to compare alternatives.
5. be able to use other economy methods to select the best alternatives to invest or to replace.
6. know technique to calculate annual depreciation and income tax.
7. know technique of decision making under uncertainty and under risk.

Course Description:

Time value of money, Engineering project analysis using economic approaches. Depreciations. Evaluation of replacement alternatives. Decisions under risks and uncertainty.

Course Outline and Tentative Plan:

Week	Chapter	Title
1	1	Introduction to Engineering Economy
2	2	Terminology and Cash-Flow Diagram
3	3	Factors and Their Use
4	4	Nominal and Interest Rates and Continuous Compounding
	5	Use of Multiple Factors
5	6	Present-worth and Capitalized-Cost Evaluation
	7	Equivalent-Uniform-Annual-Worth Evaluation
6	8	Rate-of-Return for a Single Project
7	9	Rate-of-Return Evaluation for Multiple Alternatives
8		Midterm
9	10	Benefit/Cost Ratio Evaluation
10	11	Replacement Analysis
11	12	Breakeven analysis

12	13	Depreciation Method
13	14	After-Tax Economic Analysis
14	15	Sensitivity Analysis
15	16	Decision Making Involving Risk and Decision Making Under Uncertainty
16		Case studies
17		Final Examination

Reference Books:

1. Leland T. Blank and Antony J. Tarquin. 2005. *Engineering Economy*. Fourth Edition, McGraw-Hill Book Company.
2. Chan S. Park . 2001. *Contemporary Engineering Economy*. 3rd Edition, Pearson Education.
3. Thuesen, G.J. and W. J. Fabrycky. 1993. *Engineering Economy*. 8th edition, Prentice Hall.
4. วันชัย วิจิรวนิช และ ชอุ่ม พลอยมีค่า. 2535. เศรษฐศาสตร์วิศวกรรม. โรงพิมพ์จุฬาลงกรณ์มหาวิทยาลัย.
5. Norman N. Barish and Seymour Kaplan. 1978. *Economic Analysis for engineering and Managerial Decision Making*. Second Edition, McGraw-Hill Book Company.

Course Evaluation

1. Midterm Examination 35%
2. Final Examination 45%
3. Homework, quiz, class attendance and assignment 20%