

Industrial Engineering Program

1. COURSE NUMBER AND NAME	IE 334 - Engineering Economy and Capital Investment Analysis
2. CREDITS AND CONTACT HOURS	3 Credits. 3 Contact Hours
3. COURSE INSTRUCTOR	Athanassios Bladikas
4. TEXT BOOK	Newman, Eschenbach and Lavelle, Engineering Economic Analysis, 11th Ed., Oxford University Press, 2004
4A. OTHER MATERIAL	Handouts on current issues and spreadsheets illustrating analyses performed on Excel.
5A. CATALOG DESCRIPTION	Introduction to the principles of engineering economics for utilization and evaluation of capital investments, including time value of money, depreciation, cost of capital, life cycle cost, net present value, and payback. Consideration of decisions involving multiple choice replacement, uncertainty, and risk.
5B. PREREQUISITES	Junior standing
5C. REQUIRED, ELECTIVE OR SELECTED ELECTIVE	Required
6A. SPECIFIC OUTCOMES OF INSTRUCTION	<p>The students will:</p> <ol style="list-style-type: none"> 1 Learn to solve time value of money problems (a, e, k). 2 Learn to solve problems associated with the evaluation and justification of capital investments (a, e, k). 3 Learn to solve problems considering depreciation and taxes (e, k). 4 Learn to use spreadsheets to solve engineering economy problems (e, k). 5 Apply Engineering Ethics to actual engineering/business situations (f).
6B. CRITERION 3 OUTCOMES ADDRESSED	<p>The mapping of the five (5) outcomes of instruction of item 6A to the Criterion 3 outcomes (a-k) is as follows:</p> <ol style="list-style-type: none"> 1. Satisfies Criterion 3 outcomes a, e and k. 2. Satisfies Criterion 3 outcomes a, e and k. 3. Satisfies Criterion 3 outcomes e and k. 4. Satisfies Criterion 3 outcomes e and k. 5. Satisfies Criterion 3 outcome f.

7. TOPICS COVERED	<ol style="list-style-type: none">1. Introduction and overview of engineering economy and investment analysis2. Economic and cost concepts, cost categories, cost estimation3. Time value of money4. Interest rate formulations, concept of equivalence5. Analysis of alternatives, present worth, annual cost, rate of return6. Capitalized cost, pay back and benefit-cost analysis7. Breakeven analysis and sensitivity8. Depreciation, taxes, after tax rate of return9. Replacement analysis10. Decision making involving risk11. Decision making under uncertainty12. Lifecycle cost
--------------------------	---