

IE 5204 Investment Decision Making

Objective: The objective of the course is to familiarize the student with the tools of investment decision making to the extent they can be applied in operational situations. The material is quite practical and will prove useful in personal decision making as well as in many types of engineering and management decisions.

Texts:

Fleischer, G.A., *Introduction to Engineering Economy*, PWS Publishing Company, Boston, 1994.

Canada, J.R., W.G. Sullivan and J.A. White, *Capital Investment Analysis for Engineering and Management*. Second Edition, Prentice Hall, Upper Saddle River, New Jersey, 1996.

Semester grades will be determined on the following approximate bases:

Midterm exam	30%
Project	20%
Final exam	<u>50%</u>
	100%

Week Nr.	Topic
1	- Introduction and organization - Review of basic accounting concepts - Basic cost concepts and breakeven analysis
2	- Equivalence and the mathematics of compound interest - Cash flows and interest - Discrete cash flow models - Uniform and gradient series
3	- Nominal versus effective interest rates - Continuous compounding and continuous cash flows - Mid-period convention - Loans
4	- Equivalent methods for comparing alternatives (single project) - Present worth method - Future worth method - Annual worth method
5	- Rate of return method and variations - Internal rate of return method - External rate of return method - Benefit-cost ratio method
6	- Decision rules for selecting among multiple alternatives - Present worth, future worth and annual worth methods - Internal rate of return method - Benefit-cost ratio method
7	- Approximate and supplementary methods - Payback method - Profitability indexes

Week Nr.	Topic
8	Midterm Exam
9	- Depreciation methods - After-tax economy studies
10	- Price level changes (inflation) - Index numbers - Incorporating inflation into economic analysis
11	- Replacement models - Simple retirement - Retirement with identical replacement - Generalized replacement model
12	- Using MS Excel for economic analyses
13	- Risk analysis - Fundamental concepts - Decision criteria and methods for risk - Decisions under uncertainty
14	- Project presentations
15	Final Exam (comprehensive)