EEL4063 - Introduction to Business Decisions
Three Credits, Two hours and forty-five minutes, Engineering Topic.

Instructor: Reynaldo Max Padro.

Textbook: Financial Decision-Making for Engineers Author: Colin K. Drummond

Specific Course Information:
The course covers fundamental concepts and methods for making decisions based on economic analysis. These methods are suitable for problems involving capital allocations and investments as well as evaluation and selection of engineering projects. Students learn how to define and select appropriate economic criteria for the evaluation of alternatives as well as how to use proper methods for evaluating alternatives under deterministic conditions.

Key concepts include capital budgeting; evaluation of mutually exclusive alternatives, replacement analysis; effects of taxes, depreciation, and inflation; and economic evaluation of projects in the public sector. The remainder of the course deals with decision making when economic factors are not sufficient as the only evaluation criteria due to (i) uncertainty in the outcome (in which case risk attitudes must be brought to bear on the problem); (ii) nonlinearity of preference over money, and (iii) multiplicity of evaluation criteria (some of which cannot be expressed in terms of money).

Specific Goals for the Course
a. Specific outcomes of instruction
Upon successful completion of this course, the student will:
1. Describe the nature and types of decision-making situations that warrant the use of engineering economics analysis.
2. Analyze the fundamental concepts of cost accounting and financial statements.
3. Employ the concepts of time value of money and equivalence factors.
4. Appraise the economic viability of projects.
5. Recommend the best option from several alternatives.
7. Describe the use and application of Concept Maps.

b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.

In this course the student will have to show
(a) an ability to apply knowledge of mathematics, science, and engineering (N/A)
(b) an ability to design and conduct experiments (simulations), as well as to analyze, interpret data (N/A)
(c) an ability to design a system, component, or process to meet desired needs (N/A)
(d) an ability to function in multi-disciplinary teams (N/A)
(e) an ability to identify, formulate, and solve engineering problems (homework) (N/A)
(f) an understanding of professional and ethical responsibility (N/A)
(g) an ability to communicate effectively (through project reports) (N/A)
(h) the broad education necessary to understand the impact of engineering solutions in a global and societal context (N/A)
(i) a recognition of the need, and an ability to engage in life-long learning (N/A)
(j) a knowledge of contemporary issues (N/A)
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice (N/A)
(l) a knowledge of probability and statistics (N/A)

**Brief list of the topics to be covered**
1. Course introduction and individual presentations
2. Decision Making
3. Financial Statements
4. Time Value of Money
5. Applications of the Time Value of Money
6. Comparing Alternatives
7. Intellectual Property
8. Concept Maps
9. Risk and Uncertainty
10. Capital Budgeting and Replacement Analysis
11. Leadership
12. Class Summary

**GRADING:**

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**Conversion of Numerical Grade to Letter Grad**

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