Engineering Economics

Code ECO- 130	Credit Hours 2+0

Course Description

The course objective is to develop understanding of Engineering Economics successfully and its application to electrical engineering students. Further, it should be laid down as a conceptual basis for analyzing and evaluating different projects through varied engineering economics techniques.

This course deals with the thought processes, concepts, methods and knowledge bases employed by engineers for cost engineering projects and to evaluate merits of different investments, and to make the most optimal investment decisions from a series of alternative investments in order to achieve desired objectives.

Text Book:

1. Donald E. Newnan, Engineering Economic Analysis, 9th Ed.

Reference Book:

1. Contemporary Engineering Economics: by Park et al, Pearson
2. Principles of Economics by Paul A Samuelsson
3. Applied Mathematics for Business Economics and the Social Sciences by Frank S Budnick

Prerequisites

N.A

ASSESSMENT SYSTEM FOR THEORY

Quizzes	10%
Assignments	15%
Mid Terms	30%
ESE	45%

Teaching Plan

Week No	Topics	Learning Outcomes
1	Introduction	Course Outline, objectives, teaching plan, assessment method, concepts review
2-4	Basic Concepts of Economics	Introduction to Engineering Economics, Economics vs. Engineering economics; Engineering Economics studies and typical problems addressed by engineering economic studies, Demand, Supply, and Equilibrium in the market Consumption and Production Theories

5-6	Cost and Revenue Analysis	Basic terms for the cost and revenue. Concepts of cost and typical characteristics of cost functions – Fixed, Variable, Average, Marginal and Sunk costs.
7-8	Time Value of Money	Time value of money: What is interest; simple interest; compound interest - nominal vs. effective interest; Continuous compounding; time-value equivalencies, Discounted cash flow calculations: compound interest factors; the functional notation system; cash flow diagrams; solving interest problems,
9	**MID TERM**	
10-13	Public and Private Sector Engineering Economy	Introduction of the public sector, Surplus, Balance Budget and Deficit Budget, Financial Management Process, Debt Recycle Theory, Sources and Costs of capital in public Sector; the discount rate question Private sector engineering economy: sources and costs of capital; example applications, Income tax considerations; incentives for private sector investment
13-16	Comparing alternatives and Techniques for evaluation of Projects	Identifying and defining alternatives; Present Worth Comparisons, Equivalent Annual Worth Comparisons, Rate of Return Comparisons, Break-even analysis, and Profit Maximization
17	Presentations	Review of Material and Presentations
18	**End Semester Exams**	