

# ENG207 Engineering Economics and Analysis

**Level:** 2

**Credit Units:** 5 Credit Units

**Language:** ENGLISH

**Presentation Pattern:** EVERY JULY

## **Synopsis:**

Engineers regularly have to choose between different engineering project proposals. e.g. Which projects are worthwhile? Which project should have higher priority? Is one design better than another in terms of long term and short term cost trade-off's?

Projects require money that has to be disbursed at different times to design and build, and after they are built, revenues or benefits occur, usually for years. Engineering Economic Analysis aims to help engineers understand the implications of their decisions on the use of limited capital resources, taking into account the time-value of money, and provides techniques for engineers to perform analyses and comparison between different alternatives.

This course also gives the engineer a basic knowledge to understand financial statements, ratio analysis, depreciation and alternative analysis methods in judging if a project is worthwhile.

The course is specifically tailored and approached from an engineering prospective for engineers, and therefore will defer from the conventional economic courses usually offered to business students.

## **Topics:**

- Economic decision criteria in engineering choices
- Interest and equivalence cashflows
- Present worth analysis
- Rate of return analysis
- Incremental analysis
- Selecting and adjusting the minimum annual rate of return (MARR)
- Depreciation
- Income Taxes
- Replacement analysis

## **Textbooks:**

Donald G. Newman, Ted G. Eschenbach, Jerome P. Lavelle: Engineering Economics Analysis 12  
Oxford University Press, International  
ISBN-13: 9780199339280

**Learning Outcome:**

- Discuss the pros and cons in using various analysis methods in engineering economics.
- Analyze projects based on various financial parameters.
- Identify the different types of projects based on the given information.
- Employ incremental analysis / cashflow analysis / present worth analysis / payback period / NPV / IRR to rank and select the projects.
- Use taxation rules, depreciation and other expenses in financial calculations.
- Present the cash flow table and financial analysis on a project / company.
- Solve problems using breakeven analysis.
- Calculate marginal cost, average cost, salvage value, payback period, NPV, IRR, net income, net cashflow and other financial parameters.

**Assessment Strategies (Evening Class):**

<b>Components</b>	<b>Description</b>	<b>Weightage Allocation (%)</b>
Overall Continuous Assessment	PRE-CLASS QUIZ 1	2
	PRE-CLASS QUIZ 2	2
	PRE-CLASS QUIZ 3	2
	CLASS TEST 1	12
	CLASS TEST 2	12
Overall Examinable Components	Written Exam	70
<b>Total</b>		<b>100</b>