

COURSE CONTENT

Course

Course code: MCE 413
Course title: ENGINEERING ECONOMY (3 Units)
Course status: Compulsory

Course Duration

Three hours per week for 15 weeks (45 hours)

Lecturer Data

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Consultation Hours: 1-3p.m. Daily.

Course Content:

Economic Analysis of engineering projects; values systems, economic decisions on capital investments and choice of engineering alternatives; new projects, risky decisions, corporate financial practice, technology selection and replacement studies, The goals and functions of finance; concepts valuation of Engineering projects; principle of capital budgeting, cost of capital, long-term financing, short and medium financing, principles of Stock market management; tools for financial analysis and control; financial ratio analysis, funds flow analysis and financial forecasting; analysis of operating and financial leverage.computer applications and real life case studies. The nature, scope and purpose of accounting, basic financial statements in Engineering projects, accounts conventions; preparation of final accounts in semi-automated and fully automated systems; the associated profit and loss accounts and balance sheets; theories and methods of depreciation. Fundamentals of Enterprise Resource software design.

Course Description:

This course covers economic decisions on capital investments, choice of engineering alternatives, budgeting methods and decision rules, corporate finance and financial forecasting.

Course objectives

At the end of this course, students would be able to:

- (i) *Understand the importance and relevance of engineering economy to engineers.*

- (ii) *Understand time value of money and various compound interest formulas and know how to use them.*
- (iii) *Understand methods of making economic decisions on capital investments, project selection, technology selection and replacement of assets.*
- (iv) *Understand the need for capital budgeting, methods of capital budgeting and factors influencing capital budgeting.*
- (vi) *Understand methods of financial forecasting. Understand Joint types, working*

Method of Grading

S/N	Grading	Score (%)
1.	Test	15
2.	Assignment	15
3.	Final Examination	70
	Total	100

Course Delivery Strategies – Illustration below:

Lecturing method complimented with case studies.

LECTURE CONTENT

Module 1

Week 1: Time value of money, concept of equivalence and interest formulas.

Week 2: Example problems on compounding, discounting, annuity, sinking fund and capital recovery.

Week 3: Theories and methods of depreciation.

Module 2

Week 4: Capital project screening and selection: convectional and discounted payback methods

Week 5: Project screening and selection: Net present worth and internal rate of return methods

Week 7: Examples on independent and mutually exclusive projects.

Module 3

Week 8: Needs for capital budgeting and factors that influence Capital budgeting.

Week 9: Methods of capital budgeting and decision rules

Week 10: Technology selection and replacement studies

Module 4

Week 11: Corporate Financial forecasting: Percentage of sales method.

Week 12: Financial forecasting: External financing needed (EFN).

Week 13: Case studies

Module 5

Week 14: Case studies

Week 15: Revision

References

1. Chans S. Park (2004) Fundamentals of Engineering Economics Pearson Prentice Hall **ISBN 0-13-030791-2.**
2. Maynard's Industrial Engineering Handbook McGraw-Hill
3. Sullivan, arthur; Steven M. Sheffrin (2005). *Economics: Principles in action*. Upper Saddle River, New Jersey 07458: Pearson Prentice Hall. p. 375. ISBN 0-13-063085-3.
4. Investment Decisions and Capital Budgeting, Prof. Campbell R. Harvey; The Investment Decision of the Corporation, Prof. Don M. Chance
5. Varshney, R.L.; K.L. Maheshwari (2010). *Manegerial Economics*. 23 Daryaganj, New Delhi 110002: Sultan Chand & Sons. p. 881. ISBN 978-81-8054-784-3.
6. International Good Practice: Guidance on Project Appraisal Using Discounted Cash Flow, International Federation of Accountants, June 2008, ISBN 978-1-934779-39-2
7. Prospective Analysis: Guidelines for Forecasting Financial Statements, Ignacio Velez-Pareja, Joseph Tham, 2008
8. To Plug or Not to Plug, that is the Question: No Plugs, No Circularity: A Better Way to Forecast Financial Statements, Ignacio Velez-Pareja, 2008
9. A Step by Step Guide to Construct a Financial Model Without Plugs and Without Circularity for Valuation Purposes, Ignacio Velez-Pareja, 2008
10. Long-Term Financial Statements Forecasting: Reinvesting Retained Earnings, Sergei Cheremushkin, 2008

SOURCE: Resource Person: Tanvir Hossain, Management Counsellor, Bangladesh Institute of Management (BIM),tanvir.fm@gmail.com 01726134400