GUJARAT TECHNOLOGICAL UNIVERSITY

Master of Engineering
Subject Code: 3724609
Semester – II
Subject Name: ENGINEERING ECONOMICS AND FINANCIAL MANAGEMENT

Type of course: Elective - III

Prerequisite: Nil

Rationale:
The aim of this course is to make students understand and appreciate the importance of engineering economic analysis. Students can get acquainted with different engineering economic analysis. The course is also aimed at imparting knowledge of Economics fundamentals and Financial Management to students.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	2	4	70	30	30	20	150

Content:

Sr. No.	Content	Total Hrs
1	Introduction to Engineering Economics: Definitions, Concepts of Macro and Micro Economics, Types of goods, Concept of economic and non- economic activities, Time Value of Money, Interest Calculations, Equivalence, Simple and Compound Interest, Cash Flows: Estimation and Diagramming.	03
2	Introduction to Factors and Their Use: Single Payment Factors (F/P and P/F), Uniform Series Present Worth Factor and Capital Recovery Factor (P/A and A/P), sinking Fund Factor and Uniform Series Compound Amount Factor (A/F and F/A), Standard Factor Notation and Use of Interest Tables, Present Worth, Future Worth and Equivalent Uniform annual Worth Calculations, Calculations of Unknown Interest Rates and Unknown Years.	06
3	Present Worth and Capitalized Cost Evaluation: Present Worth Comparison of Equal and Different Life Alternatives, Life Cycle Cost, Capitalized Cost Calculations.	03
4	Rate of Return: Calculations Using PW and AW Equations	02
5	Benefit/Cost Analysis: Classification of Benefits, Costs and Disbenefits, Calculations for a Single Project, Alternative Selection by B/C Analysis	04
6	Laws of Demand& Supply: Law of Demand, Demand Function, Types of Demand, Determinants of Demands, Demand Elasticity, Methods of Demand Forecasting, Law of Supply	03
7	Factors of Production: Production Function, Factors of Production, Division of Labour, Localization of Industry, Capital and Capital formation, Scales of Production, Production Analysis – Long & Short Run,	03

8	Laws of returns: Laws of Returns, Utility, Law of Diminishing Marginal Utility.	**02**
9	Market Structures: Introduction to different market structures (perfect competition, monopoly, monopolistic competition, oligopoly)	**03**
10	Introduction to Financial Management: Forms of Business Organization, Introduction to financial management, Organization of the financial management functions, Business Environment, Tax Environment, and Financial Environment, Budgeting Fundamentals.	**04**
11	Financial Statements: Accounting Systems, Profit and Loss Accounts, Drawing of Balance Sheet and Ratio Analysis, Income statement, Trend analysis, Common size, and Index analysis. Flow of funds statement, Cash Flow Analysis.	**04**
12	Product Costing: Costing based on fixed and variable costs, Break-Even Analysis, Profit – Volume Ratio, Costing based on direct and indirect costs, Overheads apportionment and absorption, Different Models of Depreciation.	**03**
13	Working Capital: Issues with working capital, Financing current assets, combining liability structure and current asset decisions. Capital budgeting.	**02**
14	Financing: Intermediate and long-term financing. Private placement, initial financing, signaling effects, secondary market, bonds and their features, long term debit instruments. Term loans and leases. Provision of loan agreements, equipment financing, Lease financing and its evaluation.	**03**

Suggested Specification table with Marks (Theory): (For BE only)

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20	**25**	**20**	**15**	**10**	**10**

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1) Engineering Economy, Laland T. Blank and Anthony J. Tarquin, McGraw Hill International Editions – Industrial Engineering Series.
2) Modern Economic Theory, Dewett and Verma, S. Chand & Sons
3) Managerial Economics, G S Gupta, Tata McGraw-Hill, New Delhi
4) Fundamentals of Financial Management, Van Horne, J C and Wachowicz, J M, Pearson Education Asia (2002).
5) Financial Management -Theory and practice, PrasannaChandra, TMH, 5thedition, 2001.

6) Financial Management – Theory and practice, I.M.pandey, Vikas Publishing Hina 2002.
7) Managerial Economics, Petersen, C & Lewis, W.C.:, PHI
8) Managerial Economics, Hailstones, Thomas J. and Rathwell, John C., Prentice Hall International.
9) Engineering Economics, Perk, Contemporary 3rd Ed, PHI
10) Engineering Economics, Panneerselvam, PHI
11) Financial Management and Policy, Van Horne, 12/e, PHI, 2002.
12) Principles of Corporate Finance, Breally and Myers, 7/e, TMH, 2002.
13) Fundamentals of Corporate Finance, Ross, Westerfield and Jordan, 6/e, TMH,2002.
14) Corporate Finance, Damodaran, John Wiley & Sons, 2002.

Course Outcomes:

Sr. No.	CO statement	Marks % weightage
CO-1	Understand the concepts of time value of money.	15
CO-2	Understand and carry out engineering economic analysis.	20
CO-3	Understand economic factor / ratio concepts and Get acquainted to various economic fundamentals.	25
CO-4	Know about financial environment and financial management.	15
CO-5	Understanding various capital investment alternatives.	15
CO-6	Understanding the concepts of cost analysis and depreciation.	10

Term Work:
The term work shall be based on the topics mentioned above.

List of Experiments:

1) Exercise on simple and compound interest. (Time Value of money)
2) Exercise on Present Worth and Annual Worth (PW and AW) Factorial Analysis.
3) Exercise on Capital Cost Evaluation (CCE) analysis.
4) Exercise on Rate of Return (ROR) analysis.
5) Exercise on Benefit Cost (B/C) analysis.
6) Exercise on Financial statements.
7) Exercise on Break-even analysis.
8) Exercise on Overheads apportionment and absorption method.
9) Exercise on Depreciation Cost analysis.

Major Equipment:

Nil

List of Open Source Software/learning website: