COURSE HANDOUT
B. Tech- 7th Semester

Course Title : **Engineering Economics and Project Management** **Dated** : 27-11-2017

Course Code : HS3405 **Academic Year**: 2017-18

Course Structure : 3-1-0-4

Course coordinator : M. Satish

Instructor(s) : Dr. D. Srinivasa Kumar, Dr. K. V. S. Prasad

Course Description : This course provides an introduction to the concepts of economics/management. It also contributes in decision making of the engineering graduates in their organizational operations. Economic, time, and performance parameters of engineering projects are analyzed from the organizational and resource perspectives. Network optimization and resource allocation concepts are introduced. Fundamental engineering economics concepts are introduced and applied to planning and managing projects.

Scope and Objective:
Students undergoing this course are expected to:

1. Acquaint the basic concepts of Engineering Economics and its application
2. Understand the effect of cost structure on decisions
3. Know various methods available for evaluating the investment proposals
4. Make the optimal decisions acquiring the knowledge on financial accounting
5. Gain the relevant knowledge in the field of management theory and practice
6. Understand the project management lifecycle and be knowledgeable on the various phases from project initiation through closure

Text Books:

1. Fundamentals of Engineering Economics by Pravin Kumar, Wiley India Pvt. Ltd. New Delhi, 2012.
2. Project Management by Rajeev M Gupta, PHI Learning Pvt. Ltd. New Delhi, 2011.

Reference Books:

1. Engineering Economics by Panneer Selvam, R, Prentice Hall of India, New Delhi, 2013.
2. Engineering Economics and Financial Accounting (ASCENT Series) by A. Aryasri & Ramana Murthy, McGraw Hill, 2004.
3. Project Management by R. B. Khanna, PHI Learning Pvt. Ltd. New Delhi, 2011.
4. Project Management by R. Panneer Selvam & P. Senthil Kumar, PHI Learning Pvt. Ltd., New Delhi, 2009.
5. Management Science by A. Aryasri, Tata McGraw Hill, 2013
6. Essentials of Management, Koontz & Weihrich, 6/E, TMH, 2007

SYLLABUS:

UNIT-I:

Introduction to Engineering Economics:

Concept of Engineering Economics – Types of efficiency – Theory of Demand - Elasticity of demand- Supply and law of Supply.

Demand Forecasting & Cost Estimation:

Meaning – Factors governing Demand Forecasting – Methods – Indifference Curves – Cost Concepts – Elements of Cost – Break Even Analysis. **(10 + 3*)**

UNIT-II

Investment Decisions & Market Structures:

Time Value of Money – Capital Budgeting Techniques - Types of Markets – Features – Price Out-put determination under Perfect Competition, Monopoly, Monopolistic and Oligopoly.

Financial Statements & Ratio Analysis:

Introduction to Financial Accounting - Double-entry system – Journal – Ledger - Trail Balance – Final Accounts (with simple adjustments) – Ratio Analysis (Simple problems). **(11 +6*)**

UNIT-III

Introduction to Management:

Concepts of Management – Nature, Importance – Functions of Management, Levels - Evolution of Management Thought – Decision Making Process - Methods of Production (Job, Batch and Mass Production) - Inventory Control, Objectives, Functions – Analysis of Inventory – EOQ. **(12 + 2*)**

UNIT-IV

Project Management:

Introduction – Project Life Cycle – Role Project Manager - Project Selection – Technical Feasibility – Project Financing – Project Control and Scheduling through Networks - Probabilistic Models – Time-Cost Relationship (Crashing) – Human Aspects in Project Management. **(12 +4*)**

Course Outcomes:

At the end of the course the learners will be able to:

1. Outline the basic principles of engineering economics
2. Apply cost-volume-profit (CVP) analysis in their business decision making
3. Evaluate investment proposals through various capital budgeting methods
4. Apply the knowledge to prepare the simple financial statements for measuring performance of business firm
5. Analyze key issues of organization, management and administration
6. Evaluate project for accurate cost estimates and plan future activities

Course Plan:

No. Lecture	Learning objectives	Topic(s) to be covered	Chapter in the Text Book / Reference
1	**Unit – I** To explain the concept of Engineering Economics, Managerial Economics and its scope and nature	**Unit – I** Concept of Engineering Economics	T1, R2
2	To understand the concept of efficiency and its types	Types of efficiency	T1, R1
3	To understand concept of Demand analysis, Determinants of demand and Discuss the Law of demand & its exceptions	Theory of Demand	T1, R2
4	To understand the concept of Elasticity of demand and its types	Elasticity of demand	T1, R1, R2
5	To understand concept of Supply, its determinants and law of supply	Supply and law of Supply	R1, R2
6	**Tutorial – 1**		
7	To know the concept Production Function, Law of variable proportions, Isoquants, Isocosts and MRTS	Indifference Curves	T1, R2
8	Understand the Meaning and Factors governing demand forecasting	Meaning – Factors governing Demand Forecasting	T1, R1
9	To evaluate the Survey of buyers' Intentions, Collective opinion, Analysis of Time series, Trend projections, Economic Indicators, Controlled experiments and Judgmental approach etc.	Demand Forecasting – Methods	T1, T2, R1
10	To know the various Cost concepts and elements of cost	Cost Concepts - Elements of Cost	T2, R2, R3
11	To evaluate the Break-Even Point	Break Even Analysis	T1, T2, R1
12	**Tutorial – 2**		
13	**Tutorial – 3**		
14	**Unit – II** To explain the concept of Time value of money	**Unit – II** Time Value of Money	T1, T2, R2, R4
15	To explain the need for capital Budgeting and to evaluate various capital budgeting decisions (PB, ARR, NPV, IRR and PI).	Capital Budgeting Techniques	T2, R1, R4
16	**Tutorial – 4**		
17	**Tutorial – 5**		
18	To differentiate various markets and types of competition and discuss their	Types of Markets – Features	T1, R1, R2

	features		
19	To understand the Price out-put determination in perfect competition	Price Out-put determination under Perfect Competition	T1, R1
20	To understand the Price out-put determination under Monopoly, Monopolistic and Oligopoly	Price Out-put determination under Monopoly, Monopolistic and Oligopoly	T1, R2
21	To understand accounting terminology and accounting concepts.	Introduction to Financial Accounting	T1, R2, R3
22	To understand the double entry system	Double-entry system	T1, R2
23	**Tutorial – 6**		
24	To explain the concept of Journal, Ledger and its preparation	Journal and Ledger	T1, R2, R4
25	**Tutorial – 7**		
26	To explain the trail balance and its preparation	Trail Balance	T1, R2
27	To understand the trading account, Profit and loss account, Balance sheet and its preparation. Discuss the practical Problems in final accounts with simple adjustments	Final Accounts (with simple adjustments)	T1, R2
28	**Tutorial – 8**		
29	To understand financial analysis through ratios, types of ratios and simple problems on various ratios	Ratio Analysis (Simple problems)	T1, R2, R4
30	**Tutorial – 9**		
31	**Unit – III** To explain the concepts of Management	**Unit – III** Concepts of Management	T1, R5, R6
32	To understand the nature of Management	Nature of Management	T1, R5, R6
33	To understand the importance of Management	Importance of Management	T1, R5, R6
34	To discuss the various functions of management	Functions of Management	T1, R5, R6
35	To explain the various levels of management	Levels of Management	T1, R5, R6
36	To understand the F.W. Taylor's scientific management theory	Taylor's Management Theory	T1, R5
37	To understand the Henri Fayol's Management theory	Henri Fayol's Management Theory	T1, R5, R6
38	To explain the process of decision-making	Decision Making Process	T1, T2, R6
39	**Tutorial – 10**		
40	To discuss various methods of production	Methods of Production (Job, Batch and Mass Production)	T1, T2, R2
41	To understand the concept of inventory control and explain its objectives	Inventory Control- Objectives	T2, R1, R4
42	Explain the function of Inventory control	Functions of Inventory Control	T1, R1, R4

43	Discuss the Inventory levels, EOQ and ABC analysis	Analysis of Inventory – EOQ	T1, T2, R1, R3
44	**Tutorial – 11**		
45	**Unit – IV** To understand the concept of project management and explain its objectives and importance	**Unit – IV** Introduction to Project Management	T2, R3, R4
46	To explain project life cycle and its phases	Project Life Cycle	T2, R3, R4
47	To understand the role of project manager	Role Project Manager	T1, R3, R4
48	To explain the various methods of project selection	Project Selection	T2, R3, R4
49	To understand project selection criteria	Project Selection Criteria	T1, R3, R4
50	**Tutorial – 12**		
51	To discuss the factors considered in technical analysis, selection of location, technology selection and sources of technology	Technical Feasibility	T2, R3, R4
52	To explain the concept of project financing and sources of long term finance	Project Financing	T1, T2, R3
53	To understand Work Breakdown Structure (WBS), Gantt Chart, Network construction, Critical Path Method (CPM)	Project Control and Scheduling through Networks	T2, R2, R4
54	**Tutorial – 13**		
55	To explain Estimating Average Time and Standard Deviation, determining critical path, probability of completion of project and applications of probabilistic models	Probabilistic Models	T2, R3, R4
56	To discuss Time-Cost Relationship, optimizing cost and various types of crashing	Time - Cost Relationship (Crashing)	T2, R3, R4
57	**Tutorial – 14**		
58	To understand the various forms of project organizations.	Forms of project organizations	T2, R3, R4
59	To understand the project manager and traits and project leadership and communications	Project Communication	T2, R3, R4
60	**Tutorial – 15**		

Evaluation scheme:

Component	Duration (minutes)	Marks	% of weightage	Date & Time	Venue
Sessional Exam – 1	90	20	20 (Best 2 tests average)	01-01-2018 to 06-01-2018 3.30 PM to 5.00 PM	Block – 5
Sessional Exam – 2	90	20		12-02-2018 to 17-02-2018 3.30 PM to 5.00 PM	Block – 5
Sessional Exam – 3	90	20		26-03-2018 to 31-03-2018 9.00 AM to 10.30 AM	Block – 5
Comprehensive Quiz Examination	20	10	10	26-03-2018 to 31-03-2018 Time will be informed later	Block – 5
Semester End Examination	**180**	**70**	70	09-04-2018 to 21-04-2018 Time will be informed later	Block 1/2/3/4/5/6

Chamber Consultation Hour: Monday 4.00 PM to 5.00 PM

Venue: BS&H / EEE / IT Staff Room (Block – 5/3/1)

Notices: Department Notice Board/Main Notice Board

M. Satish

Signature of the Instructor **Signature of the Course - Coordinator**

*Tutorials