



Visvesvaraya Technological University
" Jnana Sangama "
Belagavi - 590018, Karnataka

CHOICE BASED CREDIT SYSTEM (CBCS)
SCHEME OF TEACHING AND EXAMINATION 2016
M TECH IN ENGINEERING MANAGEMENT

I Semester

CREDIT BASED

Subject Code	Name of the Subject	Teaching hours/week		Duration of Exam in Hours	Marks for		Total Marks	CREDITS
		Lecture	Practical / Field Work / Assignment/ Tutorials		I.A.	Exam		
16 MEM 11	Marketing Management	4	-	3	20	80	100	4
16 MEM 12	Quantitative techniques in Decision Making	4	-	3	20	80	100	4
16MEM 13	Operation Management	4	-	3	20	80	100	4
16MEM 14	Financial Management	4	-	3	20	80	100	4
16MEM 15x	Elective - I	3	-	3	20	80	100	3
16MEM16	Lab Component	--	3	3	20	80	100	2
16MEM17	Seminar	--	3	--	100	--	100	1
Total		19	6	18	220	480	700	22

Elective – I	
Sub. Code	Name of the Subject
16MEM 151	Lean Manufacturing Systems
16MEM 152	Managerial Economics
16MEM 153	Industrial Relations
16MEM 154	Management Information Systems

MARKETING MANAGEMENT

Sub Code	16MEM 11	IA Marks	20
No. of Lecture Hrs/week	04	Exam Hours	03
Total Lecture Hrs	50	Exam Marks	80

Module-1

Introduction: Role of marketing in today's organizations – core concepts of marketing – management – the evolution of marketing management concept.

Marketing Environment – Marketing system – actors in the company's Micro and Macro Environment.

10 hours

Module-2

Consumer Markets and Buying Behaviors – a Model of consumer behavior – Major factors influencing consumer behavior – the buying decision process.

10 hours

Module-3

Organizational Markets and Buying Behavior – the industrial market – the reseller market – the government market.

10 hours

Module-4

Market Segmentation – Market testing – market positioning – the marketing plan. Concept of Product life cycle and new Product development process.

10 hours

Module-5

Pricing Decisions and Channel decisions, Product branding, packing and service, advertisement and media management, Communication and promotion mix decision.

10 hours

REFERENCE BOOKS:

1. **Marketing Management, Analysis, Planning and Control** - Philip Kotler – PHI -1999.
2. **Marketing Management**– Willam J Stanton – John Wiley - Sales Force Chicago, Irwin - 1993.

QUANTITATIVE TECHNIQUES IN DECISION MAKING

Sub Code	16MEM 12	IA Marks	20
No. of Lecture Hrs/week	04	Exam Hours	03
Total Lecture Hrs	50	Exam Marks	80

Module 1:

Introduction: Statistics and managerial decisions, statistical data and Operations Research techniques.

Fundamentals of Statistics, probability and probability distributions: Measures of central tendency and location, Measure of dispersion, skewness and kurtosis, Probability and rules of probability, Random variables and probability distributions - Binomial, Poisson, Hyper geometric and Normal. **10 Hours**

Module 2: Decision Making under Uncertainty: Alternative criteria for decision under uncertainty, Bayesian approach and Incremental analysis. **Linear Programming Problem:** Formulation of L.P.P., Solution of L.P.P. by graphical method, Solution of L.P.P. by simplex method, Concept of duality and solution of dual problems, Solution of L.P.P. by dual simplex method and Sensitivity analysis. **10 Hours**

Module 3: Transportation and Assignment Problems: Structure of transportation problem and various methods to find LB.F.S, Optimality test of transportation problems by MODI method, Solution of degeneracy and unbalanced transportation problems, Assignment problems and solution by Hungarian method and Traveling Salesman problem. **10 Hours**

Module 4: Theory of Games: Two person zero sum game, Minimax & maximin strategies, Solution of game by dominance rules, arithmetic and algebraic methods, Solution of game by graphical method and method of matrices, Solution of game by Linear programming approach and approximate method to solve game problems. **10 Hours**

Module 5: Network Analysis: PERT and CPM, Network construction and determination of critical path, Calculation of ES, EF, LS, LF, TF, FF and IF, Crashing of a project, Scheduling of a project and resource leveling. **Waiting Line:** Basic structure of queuing systems and characteristics, Expressions for M/M/1 queuing model. **Simulation of Management systems:** Simulation and Monte Carlo method, Waiting line and inventory simulation models **10 Hours**

Text Books:

1. **Quantitative Techniques for managerial decisionsm** - Srivastava U.K. - New Age International Private Limited - ISBN Number: 8122401899.
2. **Operations Research** - H. Taha - Prentice Hall India – 8 Edition.

REFERENCE BOOKS:

1. **Operations Research: An Introduction** - Gupta and Heera - S.Chand and Company - 2002
2. **Introduction to Operations Research** - Hillier and Liberman - McGraw Hill International. - ISBN 10: 0072321695

OPERATIONS MANAGEMENT

Sub Code	: 16MEM 13	IA Marks	: 20
No. of Lecture Hrs/week	: 04	Exam Hours	: 03
Total Lecture Hrs	: 50	Exam Marks	: 80

Module-1

Operations Planning Concepts: Introduction, Operations Functions in Organizations, Historical development, Framework for managing operations, The trend: Information and Non-manufacturing systems, Operations management, Factors affecting productivity, International dimensions of productivity, The environment of operations, Production systems decisions- a look ahead. Introduction to ERP. **10 hours**

Module-2

Operations Decision Making : Introduction, Management as a science, Characteristics of decisions, Framework for decision making, Decision methodology, Decision Tree Problems, Economic models-Break Analysis in operations, P/V ratio, Statistical models.

System Design and Capacity: Introduction, Manufacturing and service systems, Design and systems capacity, Capacity planning. **10 hours**

Module-3

Forecasting Demand: Forecasting objectives and uses, Forecasting variables, Opinion and Judgmental methods, Time series methods, Moving Average methods, Exponential smoothing, Trend adjusted Exponential Smoothing, Regression and correlation methods, Application and control of forecasts-Mean Absolute Deviation, BIAS, and Tracking Signal. **10 hours**

Module-4

Aggregate Planning and Master Scheduling: Introduction- planning and scheduling, Objectives of aggregate planning, Three Pure Strategies, Aggregate planning methods, Master scheduling objectives, Master scheduling methods.

Material and Capacity Requirements Planning: Overview: MRP and CRP, MRP: Underlying concepts, System parameters, MRP logic, System refinements, Capacity management, CRP activities.

Scheduling and Controlling Production Activities: Introduction, PAC, Objectives and Data requirements, Loading –Finite and Infinite Scheduling methodology, priority sequencing, capacity control. **10 hours**

Module-5

Single Machine Scheduling: Concept, measures of performance, SPT rule, Weighted SPT rule, EDD rule.

Flow – Shop Scheduling: Introduction, Johnson's rule for 'n' jobs on 2 and 3 machines, CDS heuristic.

Job-Shop Scheduling: Types of schedules, Heuristic procedure, scheduling 2 jobs on 'm' machines.

10 hours

Text Books:

1. Monks, J.G., Operations Management, McGraw-Hill International Editions, 1987.
2. Productions & operations management by Adam & Ebert.
3. Pannerselvam. R., Production and Operations Management, PHI.
4. Chase Jacobs Aquilano, Operations Management for Competitive Advantages, 10th Edition, TMH

References:

1. Buffa, Modern Production/Operations Management, Wiley Eastern Ltd.
2. Chary, S.N., Production and Operations Management, Tata-McGraw Hill.
3. Operations management by James Dilworth.
4. Lee J Karjewski and Larry P Ritzman, Operations Management – strategy and Analysis, 6th Edn, Pearson Education Asia
5. B J Ranganath , System Dynamics by - I K International Publishing house Pvt. Ltd.

FINANCIAL MANAGEMENT

Sub Code	16MEM 14	IA Marks	20
No. of Lecture Hrs/week	04	Exam Hours	03
Total Lecture Hrs	50	Exam Marks	80

Module-1

Introduction to Financial Management: Objectives, functions & scope, evolution interface of Financial Management with other functional areas, environment of corporate finance.

Indian Financial System: Financial Markets – money market, capital market, Govt., Securities market, All India Financial Institutions DBI, IFCI, ICICI, IRBI, EXIM Bank, SFCs, SIDCs Investment Institutions – LID, GIC, VTI, mutual funds Commercial banks: NBFCs. **10 hours**

Module-2

Time Value of money: Future value of a single cost flow, multiple flows and annuity, present value of a single cash flow.

Risk & Return: Risk & Return concepts, risk in a portfolio, context, relationship between risk & return.

Valuation of Securities: Concept of valuation, equity valuation Dividend: Dividend capitalization approach & ratio approach. **10 hours**

Module-3

Financial Statement Analysis: Ratio analysis, time series analysis, Du pont analysis, funds flow analysis.

Sources of long term finance: Equity capital & preference capital, Debenture capital, term loan & deferred credit, Govt. Subsidies, Sales Tax Deferments & Exception, leasing and hire purchase. **10 hours**

Module-4

Cost of Capital and Capital Structure: Cost of debentures, Term loans, Equity capital & retained earnings, weighted average cost of capital, Systems of weighing. Introduction to capital structures, factors affecting capital structure, feature of an optimal capital structure, capital structures, Capital Structure theories, tradition position, MM Position and its critique imperfections.

Dividend Policy: Traditional position, water model, golden model, Miller and Modugliani position, rational expectations model. **10 hours**

Module-5

Leverage: Concept of leverage, opening leverage, financial leverage, total leverage.

Estimation of working capital – Objectives of working capital (Conservative Vs Aggressive policies), static Vs Dynamic view of W.C, Factors affecting the composition of W.C., interdependence among Components of W.C., operating cycle approach to W.C. **10 hours**

REFERENCE BOOKS:

1. **Fundamentals of Financial Management** – James C. Van Home - ISBN – 8177587862.
2. **Financial Management** – I.M. Panday – Vikas Publishing House Pvt - 2009.
3. **Management Accounting & Financial Management** – M.Y. Khan & P.K. Jain - Mcgraw Hill – Tata - ISBN: 0471477613.

LEAN MANUFACTURING SYSTEMS

Sub Code	: 16MEM 151	IA Marks	: 20
No. of Lecture Hrs/week	: 04	Exam Hours	: 03
Total Lecture Hrs	: 40	Exam Marks	: 80

Module-1

Just in time production system. JIT Logic -Pull system Japanese approach to production elimination of waste - JIT implementation requirements JIT application for job shops, Case studies

Kanban system:-Kanban rules, supplier Kanban and sequence schedule used by supplier, Monthly information & daily information. Later replenish system by Kanban sequenced withdrawal P system by sequence schedule table -problems & counter measures in applying Kanban system to subcontractors - Supplier Kanban circulation in the paternal manufacturer -structure of supplier Kanban sorting office.

8 hours

Module-2

The rise & fall of Mass Production Mass production, work force, organization, tools, product –logical limits of mass production, Sloan as a necessary compliment to Ford. Case study:- Rouge Production Plant.

The rise of lean production: - Birth place, concrete example, company as community, Final assembly plant, product development and engineering. Changing customer demand, dealing with the customer and future of lean production.

8 hours

Module-3

Shortening of production lead times -reduction of setup times, practical procedures for reducing setup time.

Standardization of operations. Machine layout, multi-function workers and job rotation. Improvement activities to reduce work force and increase worker morale -foundation for improvements.

8 hours

Module-4

Elements of lean production viz G M Framingharn -Toyota Takaoka Mass Production V /s lean production, diffusing lean production

Managing lean enterprise:- Finance, Career ladders, geographic spread and advantages of global enterprise.

8 hours

Module-5

Six sigma concepts: History, definitions, Statistical definitions, quality levels, Technical aspects, Six sigma for all: benefits to organizations, customers, suppliers and employers, Design for Six Sigma, DMAIC principles, DMADV principles, merits and demerits.

8 hour

REFERENCE BOOKS:

1. **Productions and Operations Management** - Chasel Aquilino - 10th Edition.
2. **Toyota Production System -An integrated approach to Just in Time** - Yasuhiro Monden, - Engineering aild Management Press -Institute of Industrial Engineers – 1983.
3. James P Womack, Daniel T Jones, and Daniel Roos, “**The Machine that changed the World. The Story of Lean Production** -Harper Perennial edition published 1991.
4. **Quality Function Development** - James Bossert - ASQC Press 1991.
Straight talk on design of experiments - Launshy and Weese

MANAGERIAL ECONOMICS

Sub Code	: 16MEM 152	IA Marks	: 20
No. of Lecture Hrs/week	: 04	Exam Hours	: 03
Total Lecture Hrs	: 40	Exam Marks	: 80

Module-1

Demand Analysis: Demand Theory, Preference and Choice, Empirical Demand Curves, Goods Characteristics Approach.

Production & Cost: Production Theory and Estimation: Organization of Production and the Production Function, Production Function with two variable inputs, optimal combination of inputs returns to scale. Empirical production functions. Cost Components – Cost functions, Empirical Cost functions. **8 hours**

Module-2

Market Structures: Perfect Competition: Meaning characteristics and importance, price and output determination in the short run and long run. Derived demand for inputs, shortcomings of perfect competition. **8 hours**

Module-3

Monopoly: Meaning, characteristics and importance, comparison with perfect competition, short run and long run analysis evaluation.

Monopolistic Competition: Meaning, Characteristics and Importance short run and long run analysis.

Oligopoly: Meaning, characteristics and importance, Non-Collusive Oligopoly and the kinked demand curve, Collusive Oligopoly, efficiency implications of oligopoly. **8 hours**

Module-4

Pricing in Practice: Cost-plus pricing, Evaluation of cost plus pricing, Incremental Analysis in pricing. **8 hours**

Module-5

Capital Budgeting: Meaning and Importance, Protecting Cash Flows, Present Value and Internal Rate of Return, Comparison of NPV and IRR.

Economic Growth, Development and planning economic aggregates and economic relationships. **8 hours**

REFERENCE BOOKS:

1. **Economics: Principles, Problems and Policies** – Campbell R. McConnell - McGraw Hill – 2005.
2. **Theory and Problems of Micro Economic Theory** – Dominic Salvator, McGraw Hill – 1991.
3. **Managerial Economics** – Joel Dean – PHI – 2005.
4. **Managerial Economics** – Dominic Salvator, McGraw Hill – 1995.

INDUSTRIAL RELATIONS

Sub Code	: 16MEM 153	IA Marks	: 20
No. of Lecture Hrs/week	: 04	Exam Hours	: 03
Total Lecture Hrs	: 40	Exam Marks	: 80

Module-1

Characteristics of Industrial Labour: Social consumption of Industrial Labour –The Sex component of workers – Emergence of tribal labour low level of literacy –heterogeneity of labour class – undifferentiated class character – high rate of absenteeism and turnover – Migratory character – causes of migration – Evil effects migration benefits of migration. **8 hours**

Module-2

Trade Unionism: Meaning and concept – characteristics of TU's – Functions of TU's – Principles regulating trade union functions – methods of achieving objectives – Types and structure of TU's – Trade Union Movement in India – Problems of TU's – Worker's Education and Training.

Industrial Relations: Concepts, Approaches and Organization – HRD in perspective –Special features of Industrial work – Importance of Industrial Relations – Basic facts about IR, Objectives of IR, Scope and Approaches to IR – Evolution of IR. **8 hours**

Module-3

Anatomy of Industrial Conflict: Industrial conflicts / disputes – definition and essentials of a disputes – causative factors of industrial conflict – Industrial factors – Management attitude towards labor – Government Machinery' – other causes. Strikes – forms of strike – Lockouts – Legal and illegal strike – Right to strike – Prevention of strikes. **8 hours**

Module-4

Preventive Measures for Industrial Disputes: Labour Welfare Officer and Labour Welfare Work – Importance and need – Qualification –Functions and duties – Basic features of Labour Welfare work – need – Aims – Approaches – Scope. Tripartite and Bipartite bodies – Standing orders and Grievance procedure – Ethical codes and IR – Wage policy and Wage Regulation Machinery – Workers participation in management– Collective bargaining – conciliation – agreement – arbitration adjudication. **8 hours**

Module-5

Labour Legislations: Trade Union Act – The Industrial Employment or Standing Orders Act – The Industrial Disputes Act – Payment of Wages Act – Minimum Wages Act – Maternity Benefit Act – Factories Act. **8 hours**

REFERENCE BOOKS:

1. **Industrial Relations in India** – Memoria C B – Himalaya Publishing House – New Delhi – 1998.

MANAGEMENT INFORMATION SYSTEMS

Sub Code	: 16MEM 154	IA Marks	: 20
No. of Lecture Hrs/week	: 04	Exam Hours	: 03
Total Lecture Hrs	: 40	Exam Marks	: 80

Module-1

Introduction: Definition, importance, evolution, computers and MIS organizational structures, Logical foundation, future of MIS.

Organizational Systems: Nature and Characteristics of organizations. **8 hours**

Module-2

Information Systems and Organizations, Organizational and information system structures, information, data information, management and information systems. Information support for functional areas, impact of business and information systems, organizing information systems, absorption of MIS in organizations.

8 hours

Module-3

Communication Technology: Telecommunications, Computer networking

Database Technology: Database and enterprise management, File processing systems and data base systems, Database Approach and its architecture, DBMS, Models, RDBMS, SQL, 4GL, Data Administration, Current development in databases.

8 hours

Module-4

Decision Support Systems: DSS issues, Structure Constructions – approaches, generators, tools, software and cost benefits and simple examples of applications. **8 hours**

Module-5

Expert Systems: Basic Concepts, Structure development, Benefits and Limitations.

Computer and Information System: Evolution of Computer hardware and software. **8 hours**

REFERENCE BOOKS:

- 1 **Management Information Systems** - S. Sadagopan - Prentice Hall of India New Delhi- 1995.
- 2 **Management Information Systems** - Davis G.B and Molson - McGraw Hill New York, 1985.
- 3 **Management Information Systems** - O'Brien J.A. Jr. - Mc Milan New York, 1995.
- 4 **An Introduction to Database Systems** - Date C.J - Addison Wesley - 6th Ed. Vol – 11995.
- 5 **Fundamental of Management Science** - Turban E and Meredith J.R - IRWIN Inc 1991.

Lab Component
16MEM16

1. Introduction to OR Packages
2. Building Linear Programming Models (Formulation of LPP) and performing sensitivity analysis.
3. Building Transportation Models.
4. Exercise on Assignment and Traveling salesman problems.
5. Building network models
 - Construction of PERT/CPM networks
 - CPM -Determination of critical path, Time duration and floats
 - PERT -Determination of project duration and variance.
6. Building simulation model for
 - Inventory
 - Layout
 - Banking transactions
 - Simple manufacturing system.

Suggested Software Packages:

LINDO / Quantitative System Analysis (QSA)/ TORA software / M.S. Projects/ARENA