AC 4-3-2014
Item No. – 4.84

Restructured & Revised Syllabus under Credit based Semester and Grading System

For

Master of Management Studies (MMS)

2 Years full-time Masters Degree Course in Management

(Effective from the academic year 2014 – 2015)

MMS – SYLLABUS
OPERATIONS
SPECIALIZATION

MMS – Semester – I (Core Subjects All Specialisations)

Sr. No.	Subject	Teaching Hours		Assessment Pattern				
		No. of Sessions of 90 minutes	No. of Sessions of 90 minutes per week	Continuous Assessment	Semester End Examination	Total Marks	Duration of Theory Paper	No of Credits
1	Perspective Management	30	2	40 IA	60 IA	100	3	2.5
2	Business Communication and Management Information Systems	30	2	40 IA	60 IA	100	3	2.5
3	Organisational Behaviour	30	2	40 IA	60 IA	100	3	2.5
4	Financial Accounting	30	2	40 IA	60 IA	100	3	2.5
5	Operations Management	30	2	40 IA	60 IA	100	3	2.5
6	Marketing Management	30	2	40 IA	60 IA	100	3	2.5
7	Managerial Economics	30	2	40 IA	60 IA	100	3	2.5
8	Business Statistics	30	2	40 IA	60 IA	100	3	2.5
			Total No of Credits					**20**

UA: - University Assessment; IA: - Internal Assessment

MMS –Semester II – (6 Core Subjects and 2 Specialisation Electives)

Sr. No.	Subject	Teaching Hours		Assessment Pattern				
		No. of Sessions of 90 minutes	No. of Sessions of 90 minutes per week	Continuous Assessment	Semester End Examination	Total Marks	Duration of Theory Paper	No of Credits
1	Cost & Management Accounting	30	2	40 IA	60 IA	100	3	2.5
2	Financial Management	30	2	40 IA	60 IA	100	3	2.5
3	Operations Research	30	2	40 IA	60 IA	100	3	2.5
4	Human Resources Management	30	2	40 IA	60 IA	100	3	2.5
5	Legal Aspects of Business & Taxation	30	2	40 IA	60 IA	100	3	2.5
6	Business Research Methods	30	2	40 IA	60 IA	100	3	2.5
7	Specialisation Elective I	30	2	40 IA	60 IA	100	3	2.5
8	Specialisation Elective II	30	2	40 IA	60 IA	100	3	2.5
			Total No of Credits					**20**

UA: - University Assessment; IA: - Internal Assessment

Electives (Students are supposed to choose any two of the following specialization Electives as per their area of specialization)

Semester II Marketing Specialisation Electives (Any Two)

Rural Marketing
Event Management
Retail Management
Export Documentation & Procedures

Semester II Finance Specialisation Electives (Any Two)

Financial Markets, Products & Institutions
Analysis of Financial Statements
International Finance
Banking & Insurance

Semester II Human Resource Specialisation Electives (Any Two)

Indian Ethos in Management
Human Resource Planning
Human Resource Information Systems
Compensation & Benefits

Semester II Operations Specialisation Electives (Any Two)

Total Quality Management
Supply Chain Risk and Performance Measurement
Designing Operations Systems
Technology Management & Manufacturing Strategy

Semester II Information Technology Specialisation Electives (Any Two)

E – Commerce
Networking and Communications
Enterprise Applications
Software Quality Assurance & Marketing

Semester II Corporate Law Specialisation Electives (Any Two)

Legal environment of business
Legal Theories and Documentation
REALTY
Regulatory Aspects of Marketing and Advertising

Semester II Education Management Specialisation Electives (Any Two)

Education as a system
Technologies for learning
Historical Issues and Education Policy
Curriculum Management and Planned Change

Semester II Consulting Specialisation Electives (Any Two)

Consulting Tools
International Consulting
Consulting Solutions
Consulting and Culture

MMS –Semester III – Operations Specialisation

Sr. No.	Subject	Teaching Hours		Assessment Pattern				
		No. of Sessions of 90 minutes	No. of Sessions of 90 minutes per week	Continuous Assessment	Semester End Examination	Total Marks	Duration of Theory Paper	No of Credits
1	**International Business**	30	2	40 IA	**60 UA**	100	3	2.5
2	Strategic Management	30	2	40 IA	60 IA	100	3	2.5
3	**Advanced Supply Chain Management**	30	2	40 IA	**60 UA**	100	3	2.5
4	Materials Management & Transportation	30	2	40 IA	60 IA	100	3	2.5
5	Business Process Re-engineering and Benchmarking	30	2	40 IA	60 IA	100	3	2.5
6	Manufacturing Resource Planning & Control	30	2	40 IA	60 IA	100	3	2.5
7	Operations Elective – I	30	2	40 IA	60 IA	100	3	2.5
8	Operations Elective – II	30	2	40 IA	60 IA	100	3	2.5
9	Summer Internship	100						2.5
			Total No of Credits					**22.5**

UA: - University Assessment; IA: - Internal Assessment

Electives (Students are supposed to choose any two of the following specialization Electives)

Semester III Operations Specialisation Electives (Any Two)

Quantitative Methods in Operations
New Product Development and Concurrent Engineering
Industrial Engineering Applications and Management
International Logistics & Supply Chains

MMS –Semester IV – Operations Specialisation

Sr. No.	Subject	Teaching Hours		Assessment Pattern				
		No. of Sessions of 90 minutes	No. of Sessions of 90 minutes per week	Continuous Assessment	Semester End Examination	Total Marks	Duration of Theory Paper	No of Credits
1	**Management Control Systems**	30	2	40 IA	**60 UA**	100	3	2.5
2	Creativity & Innovation Management	30	2	40 IA	60 IA	100	3	2.5
3	Strategic Operations Management	30	2	40 IA	60 IA	100	3	2.5
4	Project Management	30	2	40 IA	60 IA	100	3	2.5
5	Operations Elective – I	30	2	40 IA	60 IA	100	3	2.5
6	Operations Elective – II	30	2	40 IA	60 IA	100	3	2.5
7	Industry Oriented Dissertation Project	100						2.5
			Total No of Credits					**17.5**

UA: - University Assessment; IA: - Internal Assessment

Electives (Students are supposed to choose any two of the following specialization Electives)

Semester IV Operations Specialisation Electives (Any Two)

Six Sigma
World Class Manufacturing
Service Operations Management
Lean Manufacturing

Semester	Total No of Credits
Semester I	20
Semester II	20
Semester III	22.5
Semester IV	17.5
Total	**80**

MMS SEMESTER – I
(All Specialisations)

Perspective Management (15 Sessions of 3 Hours Each) Sem I

S. No.	Particulars	Sessions
1	➢ Management : Science, Theory and Practice - The Evolution of Management ➢ Thought and the Patterns of Management Analysis - Management and Society : ➢ Social Responsibility and Ethics - Global and Comparative Management - The ➢ Basis of Global Management – Functions of Management-The Nature and Purpose ➢ of Planning - Objectives - Strategies, Policies and Planning Premises - Decision ➢ Making - Global Planning.	**3 Sessions of 3 Hours**
2	➢ The Nature of Organizing - Organizational Structure : Departmentation - Line/Staff ➢ Authority and Decentralization - Effective Organizing and Organizational Culture - ➢ Global Organizing. Co-ordination functions in Organisation - Human Factors and ➢ Motivation - Leadership - Committees and group Decision Making - ➢ Communication - Global Leading.	**2 Sessions of 3 Hours**
3	➢ The System and Process of Controlling - Control Techniques and Information ➢ Technology - Global Controlling and Global Challenges – Direction Function – Significance.	**2 Sessions of 3 Hours**
4	➢ **"Mental Conditioning"-**Cover areas such as Entrepreneur Versus Manager: Risk and Rewards; To be a Master and not a Servant; Social: contribution: creating jobs. Work when and where you want; Scope for innovation and creativity.	**2 Sessions of 3 Hours**
5	➢ **Strategic Management: -**Definition, Classes of Decisions, Levels of Decision, Strategy, Role of different Strategist, Relevance of Strategic Management and its Benefits, Strategic Management in India	**2 Sessions of 3 Hours**

6	**Recent Trends in Management: -** Social Responsibility of Management – environment friendly management Management of Change Management of Crisis Total Quality Management Stress Management International Management	**2 Sessions of 3 Hours**
7	Case Studies and Presentations.	**2 Sessions of 3 Hours**

Reference Text

1. Management – A competency building approach – Heil Reigel / Jackson/ Slocum
2. Principles of Management – Davar
3. Good to Great – Jim Collins
4. Stoner, Freeman & Gulbert: Management (Prentice Hall India)
5. V.S.P. Rao & V. Hari Krishna: Management Text & Cases (Excel Books)
6. Heinz Weirich: Management (Tata McGraw Hill)
7. Certo: Modern Management (Prentice Hall India)
8.Management – Principles, Processes and Practices – Anil Bhat and Arya Kumar – Oxford Publications
9. Management – Theory & Practice – Dr Vandana Jain – International Book House Ltd
10.Principles of Management – Esha Jain – International Book House Ltd
11. Management Today – Principles & Practice – Burton – McGraw Hill Publications

Business Communication & Management Information Systems (15 Sessions of 3 Hours Each) Sem I

Business Communication

SL.No	Particulars	Sessions
1	Introduction to Managerial Communication Understanding the Components of Communication Small Group and Team Communication Business and Professional Communication	**2 Sessions of 3 Hours Each**
2	Written Analysis and Communication Spoken Business Communication	**1 Session of 3 Hours**
3	Cultural Identities and Intercultural Communication Difficult Communication	**1 Session of 3 Hours**
4	Intercultural Communication Competence Organizational Communication	**1 Session of 3 Hours**
5	Persuasive Communication Barriers to Communication	**1 Session of 3 Hours**

Reference Text

1. Cottrell, S. (2003) The study skills handbook – 2nd Ed Macmillan
2. Payne, E. & Whittaker L. (2000) Developing essential study skills, Financial Times – Prentice Hall
3. Turner, J. (2002) How to study: a short introduction – Sage
4. Northledge, A. (1990) The good study guide The Open University
5. Giles, K. & Hedge, N. (1995) The manager's good study guide The Open University
6. Drew, S. & Bingham, R. (2001) The student skills guide Gower
7. O'Hara, S. (1998) Studying @ university and college Kogan Page
8. Buzan, T. & Buzan, B. (2000) The Mind Map Book BBC Books
9. Svantesson, I. (1998) Learning maps and memory skills, Kogan Page
10. Theosarus – Merrilium – Oxford
11. Sen: Communication Skills (Prentice Hall India)
12. J . V. Vilanilam: More effective Communication(Sage)
13. Mohan: Developing Communication Skills(MacMillan)
14. Business Communication – Hory Sankar Mukherjee – Oxford Publications
15. Business Communication – Sangeeta Magan – International Book House Ltd
16. Corporate Communications – Argenti – McGraw Hill Publications

Management Information Systems

SL.No	Particulars	Sessions
1	❖ Basic Information Concepts and Definitions ❖ Need for Information and Information Systems (IS) in an organization ❖ Characteristics of Information and Organisation with respect to organization form, structure , philosophy, hierarchy etc	**1 Session of 3 Hours**
2	❖ Types of IS – Transaction ❖ Operational Control ❖ Management Control ❖ Decision Support ❖ Executive Information Systems	**1 Session of 3 Hours**
3	❖ Determining Information Needs for an Organisation/Individual Manager ❖ Overview of use of data flow method, analysis of information for decision processes etc.	**1 Session of 3 Hours**
4	❖ Strategic use of Information and IS – Use of Information for Customer Bonding ❖ For Knowledge Management ❖ For innovation, ❖ For Managing Business Risks ❖ For Creating a new business models and new business reality.	**2 Sessions of 3 Hours Each**
5	❖ Information Security – ❖ Sensitize students to the need for information security ❖ Concepts such as confidentiality, Integrity and Availability. Types of threats and risk, overview of some of the manual, procedural and automated controls in real life IT environments.	**2 Sessions of 3 Hours Each**
6	❖ Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text:

1. MIS a Conceptual Framework by Davis and Olson
2. Analysis and Design of Information Systems by James Senn
3. Case Studies : Case on ABC Industrial Gases – Author : Prof Pradeep Pendse
Mrs Fields Cookies – Harvard Case Study
Select Business Cases identified by each Group of Students for work thru the entire subject
2-3 Cases on Requirements Management – Author : Prof Pradeep Pendse
4. O'brien: MIS (TMH)
5. Ashok Arora & Bhatia: Management Information Systems (Excel)
6. Jessup & Valacich: Information Systems Today (Prentice Hall India)
7. L. M. Prasad : Management Information Systems (Sultan Chand)
8. Management Information Systems – Girdhar Joshi – Oxford Publications
9. Management Information Systems – M.Jaiswal & M.Mittal – Oxford Publications
10. Management Information Systems – Hitesh Gupta – International Book House Ltd
11. Management Information Systems – Dr Sahil Raj – Pearson Publications
12. Introduction to Information Systems – Leon – McGraw Hill Publications
13. Management Information Systems – Davis – McGraw Hill Publications
14. Management Information System – O'Brien – McGraw Hill Publications

Organizational behavior 100 Marks (15 Sessions of 3 Hours Each) Sem I

SL.No	Particulars	Sessions
1	Introduction to OB Origin, Nature and Scope of Organisational Behaviour Relevance to Organisational Effectiveness and Contemporary Issues.	**1 Session of 3 Hours**
2	Personality: Meaning and Determinants of Personality Process of Personality Formation Personality Types Assessment of Personality Traits for Increasing Self Awareness.	**1 Session of 3 Hours**
3	Perception, Attitude and Value Perceptual Processes, Effect of perception on Individual Decision-Making, Attitude and Behaviour. Sources of Value Effect of Values on Attitudes and Behaviour. Effects of Perception, Attitude and Values on Work Performance.	**2 Sessions of 3 Hours Each**
4	Motivation Concepts : Motives Theories of Motivation and their Applications for Behavioural Change.	**2 Sessions of 3 Hours Each**
5	Group Behaviour and Group Dynamics Work groups formal and informal groups and stages of group development. Concepts of Group Dynamics, group conflicts and group decision making. Team Effectiveness : High performing teams, Team Roles, cross functional and self directed teams	**2 Sessions of 3 Hours Each**
6	Organisational Design: Structure, size, technology Environment of organisation; Organizational Roles: -Concept of roles; role dynamics; role conflicts and stress. Organisational conflicts	**2 Sessions of 3 Hours Each**
7	Leadership: Concepts and skills of leadership Leadership and managerial roles Leadership styles and effectiveness Contemporary issues in leadership. Power and Politics: sources and Uses of power; politics at workplace Tactics and strategies.	**2 Sessions of 3 Hours Each**

8	Organisation Development Organisational Change and Culture Environment, Organisational culture and climate Contemporary issues relating to business situations Process of change and Organizational Development	**1 Session of 3 Hours**
9	Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

1. Understanding Organizational Behavior **–** Udai Pareek
2. Organizational Behavior **–** Stephen Robbins
3. Organizational Behavior **–** Fred Luthans
4. Organizational Behavior **–** L. M. Prasad (Sultan Chand)
5. Organisational Behaviour – Dipak Kumar Bhattacharya – Oxford Publications
6. Organisational Behaviour – Dr Chandra sekhar Dash – International Book House Ltd
7. Organisational Behaviour – Meera Shankar – International Book House Ltd
8. Management & Organisational Behaviour – Laurie Mullins – Pearson Publications
9. Organisational Behaviour, Structure, Process – Gibson – McGraw Hill Publications
10. Organisational Behaviour – McShane – McGraw Hill Publications

Financial Accounting 100 marks (15 Sessions of 3 Hours Each) Sem I

SL.No	Particulars	Sessions
1	• Introduction to Accounting • Concept and necessity of Accounting • An Overview of Income Statement and Balance Sheet.	**1 Session of 3 Hours**
2	• Introduction and Meaning of GAAP • Concepts of Accounting • Impact of Accounting • Concepts on Income Statement and Balance Sheet.	**1 Session of 3 Hours**
3	• Accounting Mechanics • Process leading to preparation of Trial Balance and Financial Statements • Preparation of Financial Statements with Adjustment Entries.	**2 Sessions of 3 Hours Each**
4	• Revenue Recognition and Measurement • Capital and Revenue Items • Treatment of R & D Expenses • Preproduction Cost • Deferred Revenue Expenditure etc.	**1 Session of 3 Hours**
5	• Fixed Assets and Depreciation Accounting • Evaluation and Accounting of Inventory.	**1 Session of 3 Hours**
6	• Preparation and Complete Understanding of Corporate Financial Statements • 'T' Form and Vertical Form of Financial Statements.	**2 Sessions of 3 Hours**
7	• Important Accounting Standards.	**1 Session of 3 Hours**
8	• Corporate Financial Reporting – Analysis of Interpretation thereof with reference to Ratio Analysis. Fund Flow, Cash Flow. • **Corporate Accounting** Accounting of Joint Stock Companies: Overview of Share Capital and Debentures, Accounting for Issue and forfeiture of Shares, Issue of Bonus Share. Issue of Debentures, Financial Statements of Companies: Income Statement and Balance Sheet in Schedule VI. Provisions of the Companies Act: Affecting preparation of Financial Statements, Creative Accounting, Annual Report, Presentation and analysis of Audit reports and Directors report. (Students should be exposed to reading of Annual Reports of Companies both detailed and summarized version).	**3 Sessions of 3 Hours Each**

9	• Inflation Accounting & Ethical Issue in Accounting.	**1 Session of 3 Hours**
10	• Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference text:

1. Financial Accounting: Text & Case: Deardon & Bhattacharya
2. Financial Accounting for Managers – T.P.Ghosh
3. Financial Accounting – Reporting & Analysis – Stice & Diamond
4. Financial Accounting: R.Narayanaswamy
5. Full Text of Indian Accounting standard – Taxman Publication
6. Financial Accounting for Management – Paresh Shah – Oxford Publications
7. Financial Accounting – Bhushan Kumar Goyal & H.N Tiwari – International Book House Ltd
8. Accounting & Financial Analysis – Dr Santosh Singhal – International Book House Ltd
9. Financial Accounting – Libby – McGraw Hill Publications
10. Financial Accounting – Mukherjee & Hanif – Financial Accounting

Operations Management 100 Marks (15 Sessions of 3 Hours Each) Sem I

SL.No	Particulars	Sessions
1	• Introduction • Operations Strategy • Competitive Advantage • Time Based Competition	**1 Session of 3 Hours**
2	• Product Decision and Analysis • Product Development	**1 Session of 3 Hours**
3	• Process Selection • Process Design • Process Analysis	**1 Session of 3 Hours**
4	• Facility Location • Facility Layout	**2 Sessions of 3 Hours**
5	• Capacity Planning • Capacity Decisions • Waiting Lines	**1 Session of 3 Hours**
6	• Aggregate Planning	**1 Session of 3 Hours**
7	• Basics of MRP / ERP	**1 Session of 3 Hours**
8	• Basics of Scheduling	**1 Session of 3 Hours**
9	• Basics of Project Management	**1 Session of 3 Hours**
10	• Basics of Work Study, Job Design and Work Measurement	**1 Session of 3 Hours**
11	• Basics of Quality Control, Statistical Quality Control • And Total Quality Management	**1 Session of 3 Hours**
12	• Basics of Environmental Management • Basics of ISO 14000 / 9000 • Basics of Value Engineering & Analysis	**1 Session of 3 Hours**
13	• Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference text

1. Production & Operations Management -S. N. Chary
2. Production & Operations Management -James. B. Dilworth
3. Modern Production Management -By E. S. BUFFA
4. Production and Operations Management -By Norman Gaither
5. Theory and problem in Production and operations Management -By S. N. Chary
6. Production and operation Management - By Chunawalla Patel
7. Production & operation Management – Kanishka Bedi – Oxford
8. Production & operation Management – R.C. Manocha
9. Production & operation Management – Muhlemann
10. Production & Operations Management – Kanishka Bedi – Oxford Publications

Marketing Management 100 Marks (15 Sessions of 3 Hours Each) Sem I

SL.No	Particulars	Sessions
1	**Understanding the Basics:** Concept of Need, Want and Demand Concept of Product and Brand Business Environment in India	**1 Session of 3 Hours**
2	• Introduction to Marketing concept • Evolution of marketing & Customer orientation	**1 Session of 3 Hours**
3	• Marketing Environment and Evaluation of Market opportunities	**1 Session of 3 Hours**
4	• Market research & Marketing Information Systems and Demand forecasting and Market potential analysis	**1 Session of 3 Hours**
5	• Consumer buying process & Organizational buying behavior	**1 Session of 3 Hours**
6	• Pillars of Marketing - Market segmentation, Target marketing Positioning & Differentiation	**2 Sessions of 3 Hours Each**
7	• Marketing Mix and Product decisions **–** Product Life cycle	**1 Session of 3 Hours**
8	• New Product development process	**1 Session of 3 Hours**
9	• Distribution decisions **–** Logistics & Channel decisions	**1 Session of 3 Hours**
10	• Promotion decisions **–** Integrated Marketing communications concept, communication tools	**1 Session of 3 Hours**
11	• Personal selling & Sales management	**1 Session of 3 Hours**
12	• Pricing decisions	**1 Session of 3 Hours**
13	• Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

1. Marketing Management - Kotler, Keller, Koshy & Jha – 14th edition,

2. Basic Marketing,13th edition, Perrault and McCarthy

3. Marketing management – Indian context Dr.Rajan Saxena

4. Marketing Management – Ramaswamy & Namkumari

5. R. L. Varshuey & S.L.Gupta: Marketing Management An Indian Perspective (Sultan Chand)

6. Adrich Palmer: Introduction to Marketing (Oxford)

7.Marketing – Asian Edition – Paul Baines, Chris Fill, Kelly Page and Piyush K.Sinha – Oxford Publications

8. Marketing Management – Tejashree Patankar – International Book House Ltd

9. Marketing Management – Rajendra P Maheshwari & Lokesh Jindal – International Book House Ltd

10. Marketing Management – Peter – McGraw Hill Publications

Managerial Economics 100 Marks (15 Sessions of 3 Hours Each) Sem I

SL.No	Particulars	Sessions
1	• The Meaning, Scope & Methods of Managerial Economics	**1 Session of 3 Hours**
2	• Economics Concepts relevant to Business • Demand & Supply • Production, Distribution, Consumption & Consumption Function • Cost, Price, Competition, Monopoly, Profit, • Optimisation, Margin & Average, Elasticity, Macro & Micro Analysis.	**2 Sessions of 3 Hours Each**
3	• Demand Analysis & Business Forecasting • Market Structures, Factors Influencing Demand • Elasticities & Demand Levels • Demand Analysis for various Products & Situations • Determinants of Demands for Durable & Non-durable Goods Long Run & Short Run Demand • Autonomous Demand Industry and Firm Demand.	**2 Sessions of 3 Hours Each**
4	• Cost & Production Analysis • Cost Concepts, Short Term and Long Term • Cost Output Relationship • Cost of Multiple Products Economies of Scale Production Functions • Cost & Profit Forecasting • Breakeven Analysis.	**2 Sessions of 3 Hours Each**
5	• Market Analysis • Competition, Kinds of Competitive Situations, Oligopoly and Monopoly, • Measuring Concentration of Economic Power.	**1 Session of 3 Hours**
6	• Pricing Decisions Policies & practices • Pricing & Output Decisions under Perfect & Imperfect Competition • Oligopoly & Monopoly, Pricing Methods • Product-line Pricing • Specific Pricing Problem • Price Dissemination • Price Forecasting.	**2 Sessions of 3 Hours Each**

7	• Profit Management • Role of Profit in the Economy • Nature & Measurement of Profit, Profit Policies • Policies on Profit Maximisation • Profits & Control • Profit Planning & Control.	**1 Session of 3 Hours**
8	• Capital Budgeting • Demand for Capital • Supply of Capital • Capital Rationing • Cost of Capital • Appraising of Profitability of a Project • Risk & Uncertainty • Economics & probability Analysis.	**1 Session of 3 Hours**
9	• Macro Economics and Business • Business Cycle & Business Policies • Economic Indication • Forecasting for Business • Input-Output Analysis.	**1 Session of 3 Hours**
10	• Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

1. Managerial Economics – Joel Dean
2. Managerial Economics: Concepts & Cases – Mote, Paul & Gupta.
3. Fundamentals of Managerial Economics – James Pappas & Mark Hershey.
4. Managerial Economics – Milton Spencer & Louis Siegleman.
5. Economics - Samuelson
6. Managerial Economics – Suma Damodaran – Oxford Publications
7. Principles of Economics – D.D Chaturvedi & Anand Mittal – International Book House Ltd
8. Managerial Economics – D.D Chaturvedi & S.L Gupta – International Book House Ltd
9. Economics for Business – John Sloman, Mark Sutcliffe – Pearson Publications
10. Principles of Economics – Frank – McGraw Hill Publications
11. Managerial Economics & Organisational Structure – Brickley – McGraw Hill Publications

Business Statistics 100 Marks (15 Sessions of 3 Hours Each) Sem I

SL.No	Particulars	Sessions
1	• Basic Statistical Concepts • Summarisation of Data • Frequency Distribution • Measures of Central Tendency • Measures of Dispersion • Relative Dispersion, Skewness	**1 Session of 3 Hours**
2	• Elementary Probability Theory • Relative Frequency Approach • Axiomatic Approach • Subjective Probability • Marginal & Conditional Probability • Independence/Dependence of Events • Bayes' Theorem • Chebyseheff's Lemma	**2 Sessions of 3 Hours Each**
3	• Elementary Statistical Distributions • Binomial, Poisson, Hypergeometric • Negative Exponential, Normal, Uniform	**1 Session of 3 Hours**
4	• Sampling distributions • For Mean, Proportion, Variance • From Random Samples • Standard Normal (3); Student's; Chi-Sqare • And Variance ratio (F) Distribution	**2 Sessions of 3 Hours Each**
5	• Statistical Estimation • Point & Interval estimation • Confidence Interval for Mean, Proportion & Variance	**1 Session of 3 Hours Each**

6	• Test of Hypothesis • Tests for specified values of Mean, • Proportion & Standard Deviation • Testing equality of two Means, • Proportion & Standard Deviation • Test of goodness - of fit	**2 Sessions of 3 Hours Each**
7	• Simple Correlation & Regression/Multiple Correlation & Regression • Spearman's rank Correlation	**2 Sessions of 3 Hours Each**
8	• Analysis of Variance • One-way & Two-way Classification (for Equal Class)	**1 Session of 3 Hours**
9	Elements of Integration & Differentiation	**1 Session of 3 Hours**
10	Elements of Determinants	**1 Session of 3 Hours**
11	Elements of Matrix algebra	**1 Session of 3 Hours**

Reference Text

1. Statistics for Management – Richard L Levin
2. Statistics a fresh approach – D.H.Sanders
3. Statistics concepts & applications – H.C.Schefler
4. Practical Business Statistics – Andrew F. Siegel
5. Statistics for Business with Computer applications – Edward Minieka & Z.D.Kurzeja
6. Basic Statistics for Business & Economics – Mason, Marehas
7. An Introduction to statistical methods – C. B. Gupta & Vyay Gupta (Vikas)
8. R.S. Bhardway: Business Statistics(Excel Books)
9. Sharma : Business Statistics (Pearson)
10. Beri: Statistics for Management (TMH)
11. Business Statistics – Dr S.K Khandelwal – International Book House Ltd
12. Business Statistics – An Applied Orientation – P.K Vishwanathan – Pearson Publications

MMS SEMESTER – II
(Core Papers All Specialisations)

Cost & Management Accounting 100 Marks (15 Sessions of 3 Hours Each) Sem II

SL.No	Particulars	Sessions
1	**Introduction** Accounting for Management, Role of Cost in decision making, Comparison of Management Accounting and Cost Accounting, types of cost, cost concepts, Elements of cost - Materials, Labour and overheads and their Allocation and Apportionment, preparation of Cost Sheet, Methods of Costing	**1 Session of 3 Hours**
2	• Preparation of cost sheet	**2 Sessions of 3 Hours Each**
3	• Methods of costing – with special reference to job costing, process costing, services costing	**2 Sessions of 3 Hours Each**
4	• Distinction & relationship among Financial Accounting, Cost accounting & Management Accounting	**1 Session of 3Hours**
5	**Marginal Costing** Marginal Costing versus Absorption Costing, Cost-Volume-Profit Analysis and P/V Ratio Analysis and their implications, Concept and uses of Contribution & Breakeven Point and their analysis for various types of decision-making like single product pricing, multi product pricing, replacement, sales etc. Differential Costing and Incremental Costing: Concept, uses and applications, Methods of calculation of these costs and their role in management decision making like sales, replacement, buying.	**3 Sessions of 3 Hours Each**
6	**Budgeting** Concept of Budget, Budgeting and Budgetary Control, Types of Budget, Static and Flexible Budgeting, Preparation of Cash Budget, Sales Budget, Production Budget, Materials Budget, Capital Expenditure Budget and Master Budget, Advantages and Limitations of Budgetary Control. Standard Costing: Concept of standard costs, establishing various cost standards, calculation of Material Variance, Labour Variance, and Overhead Variance, and its applications and implications.	**2 Sessions of 3 Hours Each**
7	**Responsibility Accounting and Transfer Pricing** Concept and various approaches to Responsibility Accounting, concept of investment center, cost center, profit center and responsibility center and its managerial implications, Transfer Pricing: concept, types & importance. Neo Concepts for Decision Making: Activity Based Costing, Cost Management, Value Chain Analysis, Target Costing & Life Cycle Costing : concept, strategies and applications of each.	**2 Sessions of 3 Hours Each**
8	• Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text:

1. Management Accounting for profit control – Keller & Ferrara
2. Cost Accounting for Managerial Emphasis – Horngreen
3. T. P. Ghosh: Financial Accounting for managers(Taxmann).
4.Management Accounting – Paresh Shah – Oxford Publications
5.Cost Accounting – Dr N.K Gupta & Rajiv Goel – International Book House Ltd
6.Cost Accounting – A Managerial Emphasis – Charles T Horngren – Pearson Publications
7.Management Accounting – Debarshi Bhattacharya – Pearson Publications

Financial Management 100 marks (15 Sessions of 3 Hours Each) Sem II

SL.No	Particulars	Sessions
1	Objective of Financial Management Financial Performance Appraisal using Ratio Analysis, Funds Flow Analysis & Cash Flow Analysis	**2 Sessions of 3 Hours Each**
2	Sources of Finance - Short Term/Long Term, Domestic / Foreign, Equity/Borrowings/Mixed etc. Cost of Capital & Capital - Structure Planning, Capital Budgeting & Investment Decision Analysis (using Time Value	**2 Sessions of 3 Hours Each**
3	➢ Working Capital Management - Estimation & Financing, Inventory Management, Receivable Management, Cash Management ➢ Divided Policy / Bonus - Theory & Practice	**2 Sessions of 3 Hours Each**
4	Investment (Project) identification, feasibility analysis with sensitivities, constraints and long term cash flow projection Financing Options - structuring & evaluation off-shore/ on-shore Instruments, multiple option bonds, risk analysis, financial engineering, leasing, hire purchase, foreign direct investment, private placement, issue of convertible bonds etc.	**2 Sessions of 3 Hours Each**
5	Financial Benchmarking -- concept of shareholder value maximization, interest rate structuring, bond valuations Banking - consortium banking for working capital management, credit appraisal by banks, periodic reporting, enhancement of credit limits, bank guarantees, trade finance, receivable financing, documentary credit, routing of documents through banks, correspondent banking, sales and realisation with foreign country clients, process of invoicing, reail products, high value capital equipment, periodic invoicing for large value infrastructure projects, Escrow accounts	**3 Sessions of 3 Hours Each**
6	➢ Valuation of projects and investment opportunities - due diligence procedures ➢ Credit Rating of Countries/ State / Investment & Instruments ➢ Joint Venture formulations - FIPS / RBI ➢ Infrastructure financing ➢ Issues & considerations, financial feasibility, pricing & earning model	**2 Sessions of 3 Hours Each**
7	Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text:

1. Financial Management - Brigham
2. Financial Management - Khan & Jain
3. Financial Management - Prasanna Chandra
4. Financial Management - Maheshwari
5. Financial Management – S.C.Pandey
6. Van Horne & Wachowiz: Fundamentals of Financial Management (Prentice Hall India)
7. Sharan: Fundamentals of Financial Management (Pearson)
8. Financial Management – Rajiv Srivastava & Anil Misra – Oxford Publications
9. Financial Management – Chandra Hariharan Iyer – International Book House Ltd
10.Fundamentals of Financial Management – Sheeba Kapil – Pearson Publications
11. Strategic Financial Management – Prasanna Chandra

Operations Research 100 Marks (15 Sessions of 3 Hours Each) Sem II

SL.No	Particulars	Sessions
1	❖ Introduction to OR : Concepts, Genesis, Application Potential to Diverse Problems in Business & Industry, Scope and Limitations. ❖ Assignment Problem (AP) – ➢ Concepts, Formulation of Model ➢ Hungarian Method of Solution – ➢ Maximisation / Minimisation – ➢ Balanced / Unbalanced – ➢ Prohibited Assignments - Problems.	**2 Sessions of 3 Hours Each**
2	❖ Transportation Problem (TP) :- ➢ Concepts, Formulation of Model - Solution Procedures for IFS and Optimality Check ➢ Balanced / Unbalanced ➢ Maximization / Minimization ➢ Case of Degeneracy ➢ Prohibited Routing Problems ➢ Post-Optimal Sensitivity Analysis.	**2 Sessions of 3 Hours Each**
3	❖ Linear Programming (LP) :- ➢ Concepts, Formulation of Models ➢ Diverse Problems – Graphical Explanation of Solution - Maximisation / Minimisation – ❖ Simplex Algorithm – ➢ Use of Slack /Surplus / Artificial Variables – ➢ Big M Method/Two-Phase Method – ➢ Interpretation of the Optimal Tableau – ➢ (Unique Optimum, Multiple Optimum, Unboundedness, Infeasibility & Redundancy Problems.)	**2 Sessions of 3 Hours Each**
4	❖ Linear Programming (LP) :- ➢ Duality Principle - Primal /Dual Inter-relation ➢ Post-Optimal Sensitivity Analysis for changes in b-vector, c-vector, Addition/Deletion of Variables/Constraints ➢ Dual Simplex Method - Problems Limitations of LP vis-a-vis - Non-linear Programming Problems. ➢ Brief introduction to Non-LP models and associated problems.	**1 Session of 3 Hours**

5	❖ Network Analysis ➢ Minimal Spanning Tree Problem - Shortest Route Problem ➢ Maximal Flow in Capacitated Network - Concepts and Solution Algorithm as Applied to Problem ➢ Project Planning & Control by use of CPM/PERT Concepts. Definitions of Project ➢ Jobs, Events - Arrow Diagrams - Time Analysis and Derivation of the Critical Path – ➢ Concepts of Floats (total, free, interfering, independent) - Crashing of a CPM Network - Probability Assessment in PERT Network.	**2 Sessions of 3 Hours Each**
6	❖ Queuing (Waiting-line) Models ➢ Concepts - Types of Queuing Systems (use of 6 Character Code) - Queues in Series and Parallel – ➢ Problems based on the results of following models (M/M/1) Single Channel Queue with Poisson Arrival Rate, and Negative Exponential Service Time, With and Without Limitations of Queue Size (M/G/1) ➢ Single Channel with Poisson Arrival Rate, and General Service Time, PK-Formulae.	**1 Session of 3 Hours**
7	❖ Inventory Models ➢ Types of Inventory Situations ➢ Fixed Quantity/Fixed Review Period ➢ Costs Involved - Deterministic Probability Models - Economic-Order-Quantity (EOQ) and ➢ EBQ for Finite Production Rate - Sensitivity Analysis of EOQ-EOQ Under Price Break - ➢ Determination of Safety Stock and Reorder Levels - Static Inventory Model - (Insurance Spares).	**1 Session of 3 Hours**
8	❖ Digital Simulation – ➢ Concepts - Areas of Application - Random Digits and Methods of Generating Probability Distributions ➢ Application to Problems in Queueing, Inventory, New ➢ Product, Profitability, Maintenance etc.	**1 Session of 3 Hours**

9	❖ Replacement and Maintenance Models :- ➢ Replacement of Items Subject to Deterioration and Items Subject Random Total Failure ➢ Group vs Individual Replacement Policies.	**1 Session of 3 Hours**
10	❖ Game Theory - Concepts - 2 – person ➢ N-person games - Zero - sum and Non-zero-sum games Solution Procedures to 2-person zero sum games ➢ Saddle point Mixed Strategy ➢ Sub-games Method for m x 2 or 2 x n games - Graphical Methods	**1 Session of 3 Hours**
11	❖ Equivalence of Game Theory and Linear Programming Models ➢ Solution of 3x3 Games by LP Simplex including Duality ➢ Application for Maximising / Minimising Players' Strategy.	**1 Session of 3 Hours**

Note: The teaching of the above subject is to be integrated with the most widely available software.

Reference Text

1. Operation Research - Taha
2. Quantitative Techniques in Management – N.D.Vohra
3. Quantitative Techniques in Management – J.K.Sharma
4. Operations Research, Methods & Problems – Sasieni M. & others
5. Principles of Operations Research – N.M. Wagher
6. Operation Research – V.K.Kapoor
7. C. R. Kothari: Introduction to Operations Research (Vikas)
8. Gupta & Khanna: Quantitative Techniques for decision making(Prentice Hall India)
9. Introduction to Operations Research – Gillett – McGraw Hill Publications
10. Introduction to Management Science – Hillier – McGraw Hill Publications

Human Resources Management 100 Marks (15 Sessions of 3 Hours Each) Sem II

SL.No	Particulars	Sessions
1	❖ Human Resource Management – ➢ Its Scope, Relationship with other Social Sciences - ➢ Approaches to Human Resource Management / Inter-Disciplinary Approach	**1 Session of 3 Hours**
2	❖ Organization of Personnel Functions – ➢ Personnel Department, Its Organization, Policies, Responsibilities and Place in the Organization.	**1 Session of 3Hours**
3	➢ Manpower Planning ➢ Job Analysis ➢ Job Description ➢ Scientific Recruitment and ➢ Selection Methods.	**2 Sessions of 3 Hours**
4	❖ Motivating Employees – ➢ Motivational Strategies ➢ Incentives Schemes ➢ Job-enrichment, Empowerment - Job-Satisfaction ➢ Morale ➢ Personnel Turnover.	**2 Sessions of 3 Hours**
5	❖ Performance Appraisal Systems ➢ MBO Approach ➢ Performance Counselling ➢ Career Planning.	**2 Sessions of 3 Hours Each**
6	❖ Training & Development – ➢ Identification of Training Needs ➢ Training Methods ➢ Management Development Programmes.	**1 Session of 3 Hours**

7	❖ Organisation Development – ➢ Organisation Structures ➢ Re-engineering, Multi-Skilling ➢ BPR.	**1 Session of 3 Hours**
8	❖ Management of Organizational Change.	**1 Session of 3 Hours**
9	❖ HRD Strategies for Long Term Planning & Growth. Productivity and Human Resource Management	**2 Sessions of 3 Hours Each**
10	❖ Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

1. Human Resource Management – P.Subba Rao
2. Personnel Management – C.B. Mammoria
3. Dessler: Human Resource Management(Prentice Hall India)
4. Personnel/Human Resource Management: DeCenzo & Robbins (Prentice Hall India)
5. D. K. Bhattacharya: Human Resource Management (Excel)
6. VSP Rao – Human Resource Management(Excel)
7. Gomez: Managing Human Resource (Prentice Hall India)
8. Human Resource Management – Dr P Jyothi and Dr D.N Venkatesh – Oxford Publications

Legal Aspects of Business & Taxation 100 Marks (15 Sessions of 3 Hours Each) Sem II

SL.No	Particulars	Sessions
1	Basic Concepts of Law (Definition of Law, Classification, Writs U/Article 226 & 32), Jurisdiction of Courts (Civil & Criminal prevailing within Mumbai) – Basics of Evidence (Oral, documentary, burden of proof, Examination – in – Chief, Cross Examination, re – examination) – Principles of Natural Justice (Audi Alterem Partem, Rule Against Bias, Speaking Order)	**1 Session of 3 Hours**
2	Indian Contract Act 1872 – Principles of Contract, sections – 2 – 30, 56, quasi – contracts, damages s/73 – 74. Special contracts (Indemnity, Guarantee, bailment, pledge, agency)	**2 Sessions of 3 Hours Each**
3	Indian Companies Act 2013 – Salient Features of the New Act	**3 Sessions of 3 Hours Each**
4	Competition Act – 2002 – Definition & S/3. S/4 and S/5	**1 Session of 3Hours**
5	Negotiable Instruments Act 1881, Concept of N.I (Promissory Note, Bill of Exchange & Cheque), Negotiation & dishonor of cheque U/S 138	**1 Session of 3 Hours Each**
6	Income Tax Act 1961 – Income, Residence, Heads of Income	**2 Sessions of 3 Hours Each**
7	Central Excise Act 1944, Principles of Liability for payment of Excise duty/CENVAT	**1 Session of 3 Hours Each**
8	Service Tax – General Review of Service Tax Liability	**1 Session of 3 Hours Each**
9	Central Sales Tax and Maharashtra VAT Act	**1 Session of 3 Hours Each**
10	Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text:

Bare Acts
Legal Aspects of Business – David Albquerque (Oxford University Press)
Business Law – N.D.Kapoor
Business Law – Bulchandani
Company Law – Avtar Singh
Income Tax – Dr. Singhania
Indirect Taxes – V.S.Datey
S. S. Gulshan: Mercantile Law (Excel Books)
A. K. Majumdar & G.K. Kapoor: Students guide to Company Law(Taxmann)
S. K. Tuteja: Business Law for Managers (Sultan Chand)

Business Research Methods 100 Marks (15 Sessions of 3 Hours Each) Sem II

SL.No	Particulars	Sessions
1	Relevance & Scope of Research in Management and steps involved in the Research Process	**1 Session of 3 Hours**
2	Identification of Research Problem and Defining MR problems	**1 Session of 3 Hours**
3	Research Design	**1 Session of 3 Hours**
4	Data – Collection Methodology Primary Data – Collection Methods Measurement Techniques Characteristics of Measurement Techniques – Reliability, Validity etc. Secondary Data Collection Methods Library Research References Bibliography, Abstracts, etc.	**2 Sessions of 3 Hours Each**
5	Primary and Secondary data sources Data collection instruments including in-depth interviews, projective techniques and focus groups	**2 Sessions of 3 Hours**
6	Data management plan – Sampling & measurement	**1 Session of 3 Hours**
7	Data analysis – Tabulation, SPSS applications data base, testing for association	**1 Session of 3 Hours**
8	Analysis Techniques Qualitative & Quantitative Analysis Techniques Techniques of Testing Hypothesis – Chi-square, T-test Correlation & Regression Analysis Analysis of Variance, etc. – Making Choice of an Appropriate Analysis Technique.	**3 Sessions of 3 Hours Each**
9	Research Report Writing and computer Aided Research Methodology – use of SPSS packages	**1 Session of 3 Hours**
10	Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

1. Business Research Methods – Cooper Schindler
2. Research Methodology Methods & Techniques – C.R.Kothari
3. D. K. Bhattacharya: Research Methodology (Excel)
4. P. C. Tripathy: A text book of Research Methodology in Social Science(Sultan Chand)
5. Saunder: Research Methods for business students (Pearson)
6. Marketing Research –Hair, Bush, Ortinau (2nd edition Tata McGraw Hill)
7. Marketing Research Text & Cases – (Wrenn, Stevens, Loudon Jaico publication)
8. Marketing Research Essentials – McDaniels & Gates (3rd edition SW College publications)
9. Marketing Research – Aaker, Kumar, Day (7^{th} edition John Wiley & Sons)
10. Business Research Methods – Alan Bryman & Emma Bell – Oxford Publications
11. Business Research Methods – Naval Bajpai – Pearson Publications
12. Research Methodology – S.L Gupta & Hitesh Gupta – International Book House Ltd

MMS SEMESTER – II
OPERATIONS ELECTIVES

Total Quality Management 100 Marks (15 Sessions of 3 Hours Each) Sem II Elective

SL.No	Particulars	Sessions
1	Introduction and evolution of quality movement	**1 Session of 3 Hours**
2	Contributions of Shewhart, Deming, Juran, Feigenbaum, Crosby	**1 Session of 3 Hours**
3	Contributions of Japanese pioneers Ishikawa, Taguchi, Taichi Ohno, Shigeo Shingo	**1 Session of 3 Hours**
4	Statistical quality control basics	**1 Session of 3 Hours**
5	Basics of sampling & reliability	**1 Session of 3 Hours**
6	Quality tools and techniques	**1 Session of 3 Hours**
7	Quality Improvement and Total Employee Involvement	**1 Session of 3 Hours**
8	JIT manufacturing and Lean manufacturing through waste elimination	**1 Session of 3 Hours**
9	Six Sigma tools, quality circles	**1 Session of 3 Hours**
10	Statistical Process control, process capability studies	**1 Session of 3 Hours**
11	Cost of quality – Juran / crossby	**1 Session of 3 Hours**
12	CMM / PCMM	**1 Session of 3 Hours**
13	Quality Management in services – the SERVQUAL Model	**1 Session of 3 Hours**
14	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

1. TQM in this Service – By R.P.Murthy, R.R.Lakhe
2. Total Quality – By Institute of Directors
3. 100 TQM Tools – By Mike Asher, Gopal Kanji
4. Beyond TQM – By R.L.Flood
5. Total Quality Management – Dale H Besterfield, Carol Besterfield, Mary Besterfield, Sacre Glen H.he – Pearson Publications
6. Quality Management (Total Quality Management – Dr Vikram Sharma) – International Book House Ltd
7. Total Quality Management – Poornima M Charantimath – Pearson Publications

Supply Chain Risk & Performance Measurement 100 Marks (15 Sessions of 3 Hours Each) Sem II Elective

SL. No	Particulars	Sessions
1	**Basics of Risk Management:** Risk & Management, Growth of risk Management, defining Risk, Features of Risk. Decisions & Risk, Decisions with certainty, uncertainty, risk, ignorance, Managing Risk	**1 Session of 3 Hours**
2	**Risk in Supply Chain:** Risks arising out of Trends affecting SC – Integration, Cost Reduction, Agile Logistics, E Business, Globalization, Outsourcing, SC Risk Management – Aims, Steps & Principles	**1 Session of 3 Hours**
3	**Identifying & Analyzing Risks:** Types of Risks, Identifying Risks, Tools for analyzing past events, collecting opinions, analyzing operations, Measuring Risk, Likelihood of a risky event, Consequences of risk, Responding to risks,Alternative responses, defining the options & choosing the best response, Network View of Risk - Shared risks	**2 Sessions of 3 Hours**
4	**Creating resilient SC:** Design of a resilient SC, Principles of designing Resilient SC, Physical features of a resilient SC, relationship within a resilient SC, Risk compensation & Business Continuity	**1 Session of 3 Hours**
5	**Business Continuity Management:** Emergencies & Crisis, Views of BCM & Steps in BCM	**1 Session of 3 Hours**
6	**Performance Measurement along the Supply Chain**: Relationship between Company Strategy & Supply Chain Metrics, Functional classification of Decision areas in SCM Procurement, Manufacturing, Distribution, Logistics, Global	**1 Session of 3 Hours**
7	**Traditional Approaches to Performance Measurement**: Productivity Measures, Quality Measures, Customer Service Measures, Cost Measures, Drawbacks of Traditional Measures	**2 Sessions of 3 Hours**
8	**World Class Performance Measures for Supply Chains**: Balanced Scorecard, Activity Based Management & Costing, EVA (In depth discussion & analysis expected)	**1 Session of 3 Hours**
9	**Process Driven Metrics**: SCOR framework, EFQM (In depth discussion & analysis expected)	**1 Session of 3 Hours**

10	**Building & Leveraging Metrics to drive Supply Chain Performance**: All metrics are not equal, Establishing the right Metrics, Linking Metrics to ov erall strategic objectives, Insights through cause & effect guided analysis, Quantifying financial impacts of SC Metrics, Identifying corrective actions	**2 Sessions of 3 Hours**
11	Case Studies & Presentations	**2 Sessions of 3 Hours**

Reference Text

Supply Chain Risk Management by Donald Walters, Kogan Page.

The New Supply Chain Challenge:Risk Management in a Global Economy by Bosman R, FM Global, Johnston RI, 2006.

Designing Operations Systems 100 Marks (15 Sessions of 3 Hours Each) Sem II Elective

SL.No	Particulars	Sessions
1	**Process Analysis**: Process Analysis, Process Flowcharting, Types of Processes, Measuring Process Performance, Examples of Process Analysis, Process Throughput Time Reduction	**2 Sessions of 3 Hours**
2	**Job Design & Work Measurement:** Job Design Decisions, Behavioural Considerations in Job Design – Degree of Labour Specialization, Job Enrichment, Sociotechnical Systems, Work Measurement and Standards –Time Study, Work Sampling, Comparison	**2 Sessions of 3 Hours**
3	**Designing Manufacturing Processes:** Factors involved in making products, Types of Manufacturing processes – Project, Jobbing, Batch, Line& Continuous Processing. Product Categories & Manufacturing Processes – Relationship & Choices. Implications reflected in manufacturing process alternatives. Hybrid Processes – Batch Layout, Cellular Layout	**3 Sessions of 3 Hours**
4	**Designing Service Processes I:** Characteristics of Service Operations, Factors involved in delivering services – Nature of technology / people mix, Nature of service, Complexity of service, Volumes. Overall Design of Service Delivery System. Service Blueprinting and fail-safing. Service Delivery System – detailed design – Phase I:back office or front office, Phase II: The delivery system (Non repeat services, Repeat services, single step or multi step processes).	**4 Sessions of 3 Hours**
5	**Designing Service Processes II:** Three contrasting Service Designs –Production line approach, Self-service approach, Personal attention approach. Managing customer introduced variability, Applying behavioral Science to Service Encounters.	**2 Sessions of 3 Hours**
6	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

Operations & Supply Management by Chase, Shankar, Jacobs, TMGH, 12th Edition
Operations Management – Terry Hill, Palgrave Macmillan, 2nd Edition
Operations Management by Krajewski, Ritzman, Malhotra, Pearson, 8th Edition.

Technology Management &Manufacturing Strategy 15 Sessions of 3 Hours 100 Marks Sem II Elective

SL.No	Particulars	Sessions
1	Corporate Strategy and manufacturing Pitfalls of functional based strategies Strategic Integration of Manufacturing and Marketing Concept of Order Winners and Qualifiers	**1 Session of 3 Hours**
2	Technology Management and New Product Development (NPD) Corporate Strategy and New Product Development Organization for NPD	**1 Session of 3 Hours**
3	Technology management and Idea Generation for NPD Discovering customer needs Sources for new product ideas Market assessment and value analysis Evaluation of new product ideas	**1 Session of 3 Hours**
4	Technology management and NPD project selection Assessment of product concept Assessment of competitors Concept testing Financial analysis of projects	**1 Session of 3 Hours**
5	Technology Management and Product design Integrated product design Design for Quality using Quality Function Deployment Design for Reliability Design for Manufacturability	**1 Session of 3 Hours**
6	Order Winners and Qualifiers Dimensions of Order-winners and qualifiers – manufacturing-specific, not Manufacturing-specific, not manufacturing related Determining order winners and qualifiers Relating Manufacturing and markets – price, quality, reliability, speed	**1 Session of 3 Hours**
7	Process Choice Business Implication of process choice – project, jobbing, line, batch, continuous Hybrid processes – batch related, line related Technology Strategy – flexibility, push vs pull, technological opportunities	**1 Session of 3 Hours**
8	Product Profiling and Manufacturing Manufacturing and product life cycle stages Manufacturing for multiple markets Manufacturing and incremental marketing changes	**1 Session of 3 Hours**

9	Focused manufacturing and Group Technology Principles and concepts Methodology Manufacturing Infrastructure Organizational structure – specialists, generalists Operational control – quality, inventory, manufacturing	**1 Session of 3 Hours**
10	Make or Buy Core elements of the business and strategic considerations Span of process and product technology Product volumes, costs Investment decisions	**1 Session of 3 Hours**
11	Basics of World Class Manufacturing General Principles Design Principles Human Resource Principles Quality and Process Improvement Principles Capacity Principles	**1 Session of 3 Hours**
12	Just-in-Time Manufacturing Principles Practices Time-based Competition Time as a competitive weapon New Product Development and time to market	**1 Session of 3 Hours**
13	Mass Customization Market trends Pre-requisites for mass customization Technologies for mass customization Theory of Constraints (TOC) Basics of TOC Drum-Buffer-Rope solutions to manufacturing TOC in project management and supply chain management	**1 Session of 3 Hours**
14	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

Operation management for competitive Advantage by Chase-Jacobs - Acquilano

MMS SEMESTER – III
(Core Papers All Specialisations)

International Business - 15 Sessions of 3 Hours 100 Marks Sem III Core (University Assessment)

SL. No.	Particulars	No. of Sessions
01	**Introduction to International Business** a) Objective, Scope, Importance and Current Trends b) Domestic Business v/s International Business c) Reasons For International Business – For Corporates and Country d) Modes of Entry and Operation	**2 Sessions of 3 Hours**
02	**PEST Factors and Impact on International Business** a) Risk Analysis b) Decisions to overcome or managing risks – a live current case	**1 Session of 3 Hours**
03	**Investment Management in International Business** a) Foreign Direct Investment b) Offshore Banking c) Foreign Exchange Dealings and numericals in business d) Resource Mobilization through portfolio/GDR/ADR e) Other options of funding in ventures and case discussions	**1 Session of 3 Hours**
04	**Multinational Corporations** a) Structure, system and operation b) Advantages and Disadvantages – Case discussion c) Current Opportunities of Indian MNCs and Case discussion d) Issues in foreign investments, technology transfer, pricing and regulations; International collaborative arrangements and strategic alliances.	**1 Session of 3 Hours**
05	**Globalization** a) Concept and Practice b) Role of Global Organisation and Global Managers c) Stages of building Global companies and competitiveness d) Global competitive advantages of India - Sectors and Industries – Case study	**2 Sessions of 3 Hours**
06	**International Organisations and their role in international business** a) WTO b) World Bank c) ADB d) IMF and others Case study	**1 Session of 3 Hours**

07	**Regional Trade Agreements and Free Trade Agreements (RTA and FTA)** a) NAFTA b) EC c) ASEAN d) COMESA e) LAC f) Others – Case Study	**1 Session of 3 Hours**
08	**Trade Theories and relevance in International Business** a) Absolute advantage b) Comparative advantage c) Competitive advantages d) Purchasing power points e) PLC theory f) Others – Case study	**1 Session of 3 Hours**
09	**International Logistics and Supply Chain** a) Concepts and Practice b) Components of logistics and impact on trade c) Others – Case Study	**1 Session of 3 Hours**
10	**International HR Strategies** a) Unique Characteristics of Global HR b) HR – Challenges c) Ethical Issues d) Regulator, Aspects of HR e) Others - Case Study	**1 Session of 3 Hours**
11	Emerging Developments and Other Issues: Growing concern for ecology; Counter trade; IT and international business.	**1 Session of 3 Hours**
12	**Case Studies and Presentations**	**2 Sessions of 3 Hours**

Reference Text

1. International Business – Daniels and Radebough
2. International Business – Sundaram and Black
3. International Business – Roebuck and Simon
4. International Business – Charles Hill
5. International Business – Subba Rao
6. International Business – Alan Sitkin & Nick Bowen – Oxford Publications
7. International Business: - Concept, Environment & Strategy – Vyuptakesh Sharan – Pearson Publications

Strategic Management 100 marks (15 Sessions of 3 Hours Each) Sem III Core

SL.No	Particulars	Sessions
1	Introduction to Strategic Management	**1 Session of 3 Hours Each**
2	Strategic Management Process : Vision, Mission, Goal, Philosophy, Policies of an Organisation	**1 Session of 3 Hours Each**
3	Strategy, Strategy as planned action, its importance, Process and advantages of planning Strategic v/s Operational Planning	**1 Session of 3 Hours Each**
4	**Strategy Choices** Hierarchy of Strategies Types of Strategies Porter's Generic Strategies Competitive Strategies and Strategies for different industries and company situations Strategy Development for Non-profit, Non-business oriented organizations Mckinsey's 7 S Model: Strategy, Style, Structure, Systems, Staff, Skills and Shared values.	**2 Sessions of 3 Hours Each**
5	**External and Industry Analysis** General Environment Industry / Competitive Environment Identifying industry's dominant features Porter's Five Forces of Competitive Analysis Analytic Tools: EFE Matrix and CPM	**1 Session of 3 Hours Each**
6	**Internal Analysis** Assessment of Company Performance Management & Business Functions Framework Other Frameworks for Organisational and Internal Analysis Analytical Tool: IFE Matrix	**1 Session of 3 Hours Each**
7	**Strategy Analysis and Formulation Tools** SWOT Matrix SPACE Matrix BCG Matrix IE Matrix GE – McKinsey Matrix Grand Strategy Matrix Strategy Mapping and the Balanced Scorecard	**1 Session of 3 Hours Each**
8	Growth Accelerators: Business Web, Market Power, Learning based. Management Control, Elements, Components of Management Information Systems	**1 Session of 3 Hours Each**

9	**Strategy Evaluation and Control** Performance Measurement and Monitoring	**1 Session of 3 Hours Each**
10	Financial Projections and Financial Impact of Strategies	**1 Session of 3 Hours Each**
11	**Miscellaneous Management Topics** Social Responsibility Environmental Sustainability Value Chain Analysis Economic Value Added (EVA) Market Value Added (MVA) Strategic Issues in a Global Environment	**2 Sessions of 3 Hours Each**
12	Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

1. Strategic Management – Thompson & Striekland McGraw Hill Irwin
2. Competitive advantage – Michael Porter
3. Competitive strategy – Michael Porter
4. Strategic Management – N Chandrasekaran & P.S Ananthanarayanan – Oxford Publications
5. Understanding Strategic Management - Anthony Henry – Oxford Publications
6. Concepts in Strategic Management & Business Policy – Toward Global Sustainability – Thomas L Wheelen, J David Hunger – Pearson Publications

MMS SEMESTER – III OPERATIONS MAJORS

Advanced Supply Chain Management University Assessment 100 Marks 15 Sessions of 3 Hours Sem III Major

SL.No	Particulars	Sessions
1	**Understanding the supply chain** a) What is a supply chain? b) Decision phases in a supply chain. c) Process view of a supply chain. d) The importance of supply chain flows. e) Competitive Supply Chain Strategies. f) Achieving strategic fit.	**1 Session of 3 Hours**
2	**Network design in the Supply Chain.** a) The role of network design in the supply chain. b) Factors influencing network design decisions. c) A framework for network design decisions d) Models for facility location and capacity allocation. e) Making network design decisions in practice. **Designing distribution network in a supply chain** a) The role of distribution in the supply chain. b) Factors influencing distribution network design. c) Design option for a distribution network. d) Distribution network in practice.	**2 Session of 3 Hours**
3	**Inventory Management and risk pooling** a) Introduction b) A single warehouse inventory example c) The economic lot size model. d) The effect of demand uncertainty e) Risk pooling f) Centralized versus decentralized systems. g) Managing inventory in the supply chain	**1 Session of 3 Hours**
4	**The value of Information** a) Introduction b) Bullwhip effect c) Effective forecasts d) Information for the coordination of systems. e) Locating desired products. f) Lead time reduction g) Information and supply chain trade-off. h) Designing the supply chain for conflicting goals.	**1 Session of 3 Hours**

5	**Supply chain integration** a) Introduction b) Push, Pull, and Push-Pull systems c) Demand driven strategies, Collaborative Planning Forecasting Replenishment (CPRF) concept. d) Impact of Internet on supply chain strategies. (E-business) e) Distribution strategies- Direct shipment, Cross-docking, Milk run, transshipment.	**1 Session of 3 Hours**
6	**Strategic Alliances** a) Introduction b) A framework for strategic alliances. c) Third party / fourth party logistics d) What are 3PL/4PL, Advantages and disadvantages of 3PL, 3PL issues and requirements? e) Retailer supplier partnership f) Types of RSP, Requirements of RSP, Inventory ownership in RSP, Issues and steps in RSP implementation, Advantages and disadvantages of RSP. g) Distribution Integration, Types of and issues in Distribution integration.	**1 Session of 3 Hours**
7	**E-procurement and outsourcing** a) Introduction b) Outsourcing benefits and risks. c) A framework for Buy/Make decisions. d) E-procurement e) A framework of E-procurement.	**1 Session of 3 Hours**
8	**International Issues in Supply Chain Management** a) Global market / Technological/ Cost/ Political and Economic Forces. b) Risks and advantages of international supply chain. c) International versus Regional products. d) Local autonomy versus central control. e) Regional differences in Logistics- Cultural differences/ infrastructure/ performance expectation and evaluation, Information systems availability, human resources. f) Global business logistics **Lean Manufacturing and SCM** a) Basic elements of lean manufacturing b) Benefits of lean manufacturing c) Integration of lean manufacturing and SCM. d) Mass customization, characteristics of mass customization. e) Implications and benefits of mass customization. f) SCM for mass customization.	**2 Session of 3 Hours**

9	**Procurement Management in Supply Chain** a) New Paradigms in Inventory and purchase management b) Just in time, Elements and benefits of JIT systems. c) Vendor Managed Inventory (VMI) d) VMI Business Model. e) Steps in setting up VMI, Benefits, challenges and limitations of VMI. f) Overcoming limitations of VMI. **Customer Value and SCM.** a) Introduction b) The dimensions of Customer Value. c) Conformance to requirements, product election, price and brand, Value-added services, Relationships and experiences. d) Strategic pricing	**1 Session of 3 Hours**
10	**Performance Measurement and Controls in Supply Chain Management** a) Introduction and concept of Benchmarking b) Gap Analysis c) Key actions in benchmarking for best practices. d) Overview of Supply Chain Operations Reference (SCOR) Modeling e) Balance scorecard for SCM.	**1 Session of 3 Hours**
11	**Ethical issues in SCM** a) Supply chain vulnerability b) Conformance to applicable laws such as Contract and commercial laws, trade regulation, government procurement regulations, patents, copyrights, trademark laws, transportation and logistics laws and regulations, environmental laws. c) International practices. d) Confidentiality and proprietary information.	**1 Session of 3 Hours**
12	Case Studies and Presentations	**2 Sessions of 3 Hours**

Note: All the above topics need to be supplemented by case studies.

Reference Text

1. Supply Chain Management-Strategy, Planning and Operation By Sunil Chopra and Peter Meindi (Pearson Education, New Delhi)
2. Supply Chain Management- Concepts and Cases By Rahul V. Altekar (Prentice Hall India, New Delhi)

Materials Management & Transportation 15 Sessions of 3 Hours 100 Marks Sem III Major

SL.No	Particulars	Sessions
1	**Materials Management an overview** a) Introduction, b) Importance of Materials Management c) Objectives of Materials Management d) Costs involved in the Management of Materials e) Integrated approach to Materials Management f) Organizing Materials Management. g) Organization based on Commodities. h) Organization based on Location. i) Organization based on function j) Inter-departmental relationships k) Centralized versus Decentralized materials management.	**1 Session of 3 Hours**
2	**Materials Planning** a) Introduction and factors influencing materials planning b) Techniques of materials planning c) Bill-of-Materials d) Materials Requirement Planning (MRP). e) Past Consumption Analysis Technique f) Moving Average method. g) Exponential Smoothing	**1 Session of 3 Hours**
3	**Purchasing** a) Purchasing principles, policies, procedures and practices b) Objectives, scope, responsibility and limitations c) Sources of supply and Supplier selection. d) Vendor development-evaluation and rating. e) Price forecasting f) Price-cost analysis g) Negotiations h) Reciprocity i) Legal aspects of purchasing j) Purchase orders/ contracts k) Method of buying- under certainty, under risk, and under uncertainty.	**1 Session of 3 Hours**
4	**Purchasing and Procurement Activities under Materials Management.** a) Supplier Quality Assurance Programme b) Buyer Supplier Relationship c) Self certified suppliers. d) Elements of procurement cycle.	**1 Session of 3 Hours**

5	**Purchasing of Capital Equipment** a) Significant differences b) Considerations in evaluation of bids c) Purchase of used equipment d) Sources of used equipments e) Purchase versus lease. f) Role of Purchasing Committees/ Purchase Managers.	**1 Session of 3 Hours**
6	**International procurement-Imports.** a) International commercial terms. b) Import procedures and documentation. c) Categories of importers. d) Identification of foreign sources. e) Payment terms including Letter of credit. f) Types of L/Cs. g) Custom tariff h) Custom clearance. i) Bill of Lading and other documents.	**1 Session of 3 Hours**
7	**Classification of Materials** a) Introduction and objectives of classification. b) Basis of classification. c) Classification on the basis of stage of conversion process d) Classification on the basis of nature of materials. e) Classification on the basis of usability of materials. f) Types of inventories.	**1 Session of 3 Hours**
8	**Materials receipt and stores** a) Introduction and functions of scientific store management. b) Types of stores and benefits of scientific storekeeping. c) Store location and layout. d) Typical layout plans e) Storing practices and identification of materials. f) Centralization and Decentralization of stores. g) Preservation of stores. h) Issue control.	**1 Session of 3 Hours**
9	**Codification** a) Introduction b) Benefits of codification. c) Stages of scientific codification. d) Systems of codification. e) Colour coding.	**1 Session of 3 Hours**
10	**Standardization** a) Introduction and different levels of standards b) Various Foreign Standards in use in India. c) How is an Indian standard evolved? d) Advantages of Standardization. e) Standardization as a tool for variety reduction f) The Role of Materials Management (Purchase/Stores) in Standardization/ Variety Reduction.	**1 Session of 3 Hours**

11	**Obsolete, Surplus and Scrap Management** a) Definition b) Need for Scrap yard c) Identification and control. d) Categorization of obsolete/ surplus. e) Control of scrap/ obsolescence. f) Responsibility for disposal. g) Procedures and documentation for disposal of scrap/ obsolete/ surplus.	**1 Session of 3 Hours**
12	**Stores Accounting and Stock verification** a) Costing of Receipt of Materials. b) Costing of Issues to Production. c) Stock verification d) Periodic Verification. e) Perpetual Verification. f) Process of Verification.	**1 Session of 3 Hours**
13	**Computers in Materials Management** a) Steps in computerization. b) Database for Materials Management Systems. c) Activities of Materials Management covered by Computerization. d) Management reports on Materials. e) Benefits of Computerization. **Ethics in Materials Management** a) Importance of Ethics b) Business Ethics c) Ethics in buying d) Code of ethics e) Problems in Ethics f) Backdoor selling	**1 Session of 3 Hours**
14	**Material Transportation** 20 Principles of Material Handling Palletisation Containerization Transportation Modes / Attributes Transportation mix in Economy Total cost concept in Material Handling and Transportation.	**1 Session of 3 Hours**
15	Case Studies and Presentations	**1 Session of 3 Hours**

Reference Text

1. Materials and Logistics Management By Prof. L.C. Jhamb (Everest Publishing House, Pune).
2. Purchasing and Materials Management By P.Gopalkrishnan (Tata McGraw Hill, New Delhi).
3. Materials Management –An integrated approach By P.Gopalkrishnan and M. Sundaresan (Prentice-Hall India, New Delhi).
4. Materials Management-Procedures, Text and Cases By A.K. Datta (Prentice-Hall India, New
Delhi).
5. Introduction to Materials Management By JR Tony Arnold and Stephan Chapman (Pearson Education, New Delhi) 2004 Fifth Edition.
6. Purchasing and Materials Management By N.K.Nair (Vikas Publishing House, New Delhi).

Business Process Re-engineering & Benchmarking 15 Sessions of 3 Hours 100 Marks Sem III Major

SL.No	Particulars	Sessions
1	Business Process Fundamentals Definition of Business Processes Business processes and functional processes Importance of focusing on business processes	**1 Session of 3 Hours**
2	Understanding Business Processes Customer focused analysis of business processes Identifying value adding activities	**1 Session of 3 Hours**
3	Visualizing Business Processes Introduction to flowcharting Types of flowcharts – block diagrams, functional flowchart with time-lines	**1 Session of 3 Hours**
4	Types of re-engineering Process Improvement with cost reductions Achieving best-in-class with competitive focus Radical change by re-writing the rules	**1 Session of 3 Hours**
5	Organizing for Process Improvements Setting up teams, choosing team leaders Training teams for process improvements	**1 Session of 3 Hours**
6	Benchmarking Origins of benchmarking – Xerox approach Definition of benchmarking	**1 Session of 3 Hours**
7	Internal benchmarking Benchmarking against the best in the unit Benchmarking against the best in the group	**1 Session of 3 Hours**
8	External benchmarking Benchmarking the best in the industry Benchmarking the best in any industry	**1 Session of 3 Hours**
9	Re-engineering and Information technology Flowcharting information flows Using IT to speed up processes	**1 Session of 3 Hours**
10	Organizing for re-engineering Obtaining top management commitment Creating cross-functional teams Supporting teams with resources	**1 Session of 3 Hours**
11	Re-engineering – focus phase Identification of key processes Identification of key people and getting their support Identification of benefits possible and resources required	**1 Session of 3 Hours**
12	Re-engineering – design phase Selection of processes to be re-engineered Setting time frames, targets	**1 Session of 3 Hours**

13	Re-engineering – implementation phase Communicating the benefits for the organization Communicating the benefits for the individuals Monitoring progress Consolidating the gains	**1 Session of 3 Hours**
14	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

1. Re-engineering the Corporation - Michael Hammer & James Champy
2. Beyond Re-engineering - Michael Hammer
3. Business process Bench marking - By Robert C. Camp
4. Process Re-engineering - By Lon Roberts
5. Business process Orientation - By Kevin Mc Cormack, By William C Johnson

Manufacturing Resource Planning & Control 100 Marks (15 Sessions of 3 Hours Each) Sem III Major

SL.No	Particulars	Sessions
1	**Master Production Scheduling (MPS):** Introduction to MPS, Need, objectives & functions of MPS, Role of MPS in management- as a "Link between strategic and tactical planning", Logical flow of materials in different manufacturing scenarios (VAT Analysis), Planning horizons and Time periods (Buckets) of MPS, Order management in MPS, Safety and hedges, Projected Available Balance (PAB) and Available To Promise (ATP), Time Fences & effect of changing MPS decisions on time fences, Final Assembly Schedule (FAS).	**2 Sessions of 3 Hours**
2	**Material Requirements Planning (MRP-I):**Introduction to MRP-I, Roles & functions of MRP-I, Independent & Dependent Demand, Bill of Materials (BOM), Types of BOM, Numerical Problems on BOM, Lot-sizing, MRP-I as Input & Output Process, MRP-I Spreadsheet problem, Pegging reports & Where – used files.	**2 Sessions of 3 Hours**
3	**Capacity Management:** Introduction to 'Capacity' and 'Capacity management', Capacity Expansion Strategies, Capacity Planning levels vis-à-vis Manufacturing planning levels, Capacity measurement, Rough Cut Capacity Planning (RCCP), Capacity Requirement Planning (CRP), Shop calendar, Scheduling strategies- Backward & Forward scheduling, Infinite & Finite loading, Production smoothing policies.	**2 Sessions of 3 Hours**
4	**Manufacturing Resource Planning (MRP-II)- (Module-I):**Introduction to MRP- II, Roles & functions of MRP-II, MRP-II framework, Information flow in MRP-II, Relation of MRP-II with Demand management and Capacity management, Manufacturing calendar.	**1 Session of 3 Hours**
5	**Manufacturing Resource Planning (MRP-II)- (Module-II):**Transition from MRP-I to MRP-II, Closed loop MRP, Comparison between MRP-I and MRP-II, Plant & supplier scheduling, Problems associated with MRP-II, Benefits and prospects of MRP-II, Compatibility between MRP-II & Just-in-Time (JIT).	**2 Sessions of 3 Hours**
6	Layout-models-optimization Line Balancing-models-optimization Production Plans-an overview, types Demand Management-models Capacity Planning –models	**2 Sessions of 3 Hours**

7	Resource Planning-models Aggregate Planning-models	**1 Session of 3 Hours**
8	ERP/SAP-PPC Module, reports-interpretation-variance analysis-use in decision making	**1 Session of 3 Hours**
9	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text:

Manufacturing Resource Planning (MRP II) with introduction to ERP, SCM and CRM by Khalid Sheikh, TMGH, 1st Edition

Operations Management – Theory & Practice by B. Mahadevan , Pearson Pub. 2nd Edition

MMS SEMESTER – III OPERATIONS ELECTIVES

Quantitative Methods For Operations 15 Sessions of 3 Hours 100 Marks Sem III Elective

SL.No	Particulars	Sessions
1	Linear Programming - Sensitivity Analysis - Parametric Programming - Industrial Applications Transhipment Model and Generalized Transportation Model - Capacitated Transportation Model.	**2 Sessions of 3 Hours**
2	Goal Programming Concepts - Formulation of Multiple Goal Model - Goals Equality Ranked, Priority Ranking of Goals (non - conflicting Goals - Conflicting Goals) Weighted priority ranking of Goals - Computational approaches to Goal Programming, Applications of Goal Programming	**2 Sessions of 3 Hours**
3	Waiting Line Models - Single server queues in series and parallel for Erlang Services Time Distributions - Multi Server queues in series and parallel for negative exponential service time distributions - machine Interference - Case Examples - Use of Finite queuing tables for practical problems - Non - Poisson inputs and outputs and time dependent queues – Caste Studies.	**2 Sessions of 3 Hours**
4	Advanced Inventory Models – EOQ models with non instantaneous replacement and shortages, EOQ for multiple items with space, investment and quantity constraints	**1 Session of 3 Hours**
5	Probabilistic inventory models – Continuous review model, Single period model, multi period Model	**1 Session of 3 Hours**
6	PERT / CPM - Distribution of job duration - Basics for the formula used in estimation of job duration and finding variance of the estimates - Uncertain duration and PERT Analysis -Resource allocation and least cost planning Installation of network system - case Studies.	**1 Session of 3 Hours**
7	Integer programming - Formulations of I P Models - Geomory's algorithm for the all integer problem - Algorithm for mixed inter contiguous variables - Zero - one problems - Implicit Enumeration algorithm - Applications.	**1 Session of 3 Hours**

8	Dynamic Programming – Dynamic versus linear Programming, Applications – Knapsack model, Workforce size model, Equipment replacement model, Investment model, Inventory models - Working and Cases.	**2 Sessions of 3 Hours**
9	Use of Computer in OR Studies - Standard available packages - Interpretation of computer outputs - Organizing for OR in an establish merit - OR in corporate planning.	**2 Sessions of 3 Hours**
10	Case Studies and Presentations	**1 Session of 3 Hours**

Reference Text

1. Operations Research **–** An Introduction by Hamdy Taha, Prentice Hall
2. Quantitative techniques in Management by N. D. Vohra, Tata McGraw Hill
3. Quantitative Methods/Operations Research by Banerjee
4. Quantitative Methods/Operations Research by Hira Gupta
5. Quantitative Methods/Operations Research by V. Kapoor

New product development and concurrent Engineering Internal Assessment 15 Sessions of 3 Hours 100 Marks Sem III Elective

SL.No	Particulars	Sessions
1	Defining for business goals	**2 Sessions of 3 Hours**
2	Time bound Research and development and prototype manufacturing	**3 Sessions of 3 Hours**
3	Concurrent Engineering concepts and practices for easier and quicker delivery of prototypes	**3 Sessions of 3 Hours**
4	Applications of VA/VE at design stage.	**2 Sessions of 3 Hours**
5	Successful pilot run and production	**3 Sessions of 3 Hours**
6	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

1. Operations and Industrial Management – Donald Delmar
2. Operations Management – Decision Making in the operations function – Roger Schvoeder
3. Operations Management for Competitive Advantage - Chase – Jacobs -Acquilanc

Industrial Engineering Applications and Management 15 Sessions of 3 Hours 100 Marks Sem III Elective

SL.No	Particulars	Sessions
1	Industrial Engineering definition & applications	**2 Sessions of 3 Hours**
2	I.L.O. book of Industrial Engineering Standards.	**2 Sessions of 3 Hours**
3	Industrial Engineering and productivity	**2 Sessions of 3 Hours**
4	P,Q,R,S,T concepts in plant / shop layouts and selection of materials handling equipment and storage systems	**2 Sessions of 3 Hours**
5	Pre determined methods & time systems (PMTS) & application of low cost automation.	**2 Sessions of 3 Hours**
6	Ergonomics – Definition and applications	**1 Session of 3 Hours**
7	Oraganisation Methods Applications in office and white collar productivity	**2 Sessions of 3 Hours**
8	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

· Industrial Engineering Applications and Management – Philip Hicks
· Mathematical Techniques in Industrial Engineering – Shone K. J.
· Handbook of Industrial Engineering & Management – Ireson W. G. and Grand E. L.
· Quality Detectives – Dr. Gondhalekar & Payal Shetty.

International Logistics & Supply Chains 15 Sessions of 3 Hours 100 Marks Sem III Elective

SL.No	Particulars	Sessions
1	Introduction to Global Logistics :International Logistics Development, International Trade Logistics Chain, Shipper's Logistics Requirements in trade, 7R's of Logistics Management, 5 P's of Logistics, International Commercial Terms – Use of Incoterms in a Contract, Incoterms Laws. Logistics and Documentation: Consular Invoice, Commercial Invoice, Certificate of Origin, certificate of Value, Bill of Lading, Cargo Manifest or Packing List, Health Certificate, Import license, Insurance Certificate, Export Declaration Forms. Transportation: Modes of transportation, Transport and Communication, Transport activities and Land Use, Transport, Energy and the Environment. Air Cargo: Transportation of goods through Air, Transportation Infrastructure, World Air Cargo growth, Benefits of Airfreight, Airport classification, International Airports of India, Types of Aircraft, Unit loading devices, Airport Charges, International Country Codes.	**2 Sessions of 3 Hours**
2	Carriage of Goods by Land: Motor Vehicles Act, 1988, Central Motor Vehicles Rules, 1989, Carriers Act, 1865 – Definition of common carrier, Scheduled and Non Scheduled Goods, Railways Act, 1989 – Railway's liability, Merits and Demerits of Railway Transportation, Railway Freight rates. Carriage of Goods by Sea &Ocean Freight& Freight Calculations: Ocean Shipping Methods, Ocean Freight or Tariff rates, Freight rates terminology used in international shipments, Freight surcharges, Freight Rebates, Conference Discounts, Contract Shippers, Weight or Measure in the Freight Cost Calculation, Freight Adjustments – Currency Adjustment Factor (CAF), Bunker Adjustment Factor (BAF). Types of Ships: Mail and Supply Ships, Expedition Ships, Coasters, Bulk Carriers, Tankers, Refrigerated Vessels and Reefers, Livestock carriers, LNG Carriers, Car Carriers, Container Ships, Heavy lift Vessels, Tugs, Ro-Ro Vessels.	**3 Sessions of 3 Hours**

3	Shipping Formalities: Booking Shipping Space, Conference Shipping, Non-conference Shipping, Charter Shipping, Charter Party, Shipping Storage, Ocean Shipping procedure. Shipping Intermediaries: Function and Roles of Custom Brokers, Freight Forwarders and Consolidators, Shipping Agents, Stevedores. The Major Port Trusts Act, 1963. Shipping Corporation of India: Products and Services, Bulk Carriers, LNG Carriers, STS Lighterage Operations	**3 Sessions of 3 Hours**
4	Major Ports in India: Present Policy, Privatization Policy, Indian Port Policy Reform, Major Ports in India – Chennai, Cochin, Ennore, JNPT, Kandla, Mormugao, Mumbai, Paradip, NMPT, Pipavav, Tuticorin, Visakapatnam. Important Sea Routes: Northern Sea route, North Atlantic Route, Mediterranean Route, Panama Route, Baltic Sea Route, Indian Ocean route, Cape Route, South Atlantic Route, North Pacific Route. International Chamber of Shipping World's Major Ports: Major Ports and Port codes, Seaports of the world.	**3 Sessions of 3 Hours**
5	Containerization: Origin of containerization, Origin of TEU, Container sizes – dimensions and capacity, Container Flavours, Swap Bodies, Other considerations, Registration, Container Classification numbers, Lift/Stacking fittings, Movement of containers, Recent Developments – Container, Cargos printer, Safety of container ships, Container Classification – General Cargo service, Specific cargo service, Unit Load Device, Rating – Tare Mass and Pay load of Containers, Marking and Identification of Containers. Benefits of containerization. Inland Container Depots & Container Freight Stations: Functions, Benefits, Requirements for successful ICD/CFS, Designs and Layout, Equipping the ICD/CFS, Procedures for approval and implementation. Concor –The Multimodal Logistics Professionals.	**2 Sessions of 3 Hours**
6	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

Logistics Management for International Business – Text and Cases, by Sudalaimuthu and Anthony Raj, PHI, 2009 Edition.

Global Operations and Logistics: Text and Cases by Dornier, Ernst, Fender and Kouvelis, Wiley India, 2006

Summer Internship Project (All Specialisations) 100 Marks

MMS SEMESTER – IV
(Core Papers All Specialisations)

Management Control Systems University Assessment 100 marks (15 Sessions of 3 Hours Each) Sem IV Core

SL.No	Particulars	Sessions
1	**Financial goal setting** - Analysis of Incremental ROI - Sensitivity Analysis - Developing financial goals along organizational hierarchy - Concept and technique of Responsibility Budgeting - Analytical framework for Developing Responsibility Budgets - Integrating Responsibility Budgets Integrating Responsibility Budgeting with MBO System.	**3 Sessions of 3 Hours**
2	**Organizational growth :** -Responsibility centers and profit centers -Identification and creation of profit centers, profit centers as a control system - Decentralization and profit centers.	**2 Sessions of 3 Hours**
3	Mechanics of determining profit objectives of profit centers - problems and perspectives of transfer pricing - Linear - programming technique for determining divisional goals in a multidivisional company - Problems of growth and corporate control.	**3 Sessions of 3 Hours**
4	**Control in special sectors :** Scrap Control - Control of R & D – Project Control - Administrative Cost Control - Audit - Efficiency Audit - Internal Audit -Government Cost Audit - Management Audit. Financial Reporting to Management Under conditions of price level change. Objective and methodology.	**3 Sessions of 3 Hours**
5	**Measurement of Assets Employed** - Application of MCS in Public Sector, Service Organization & Proprietary Organizations.	**2 Sessions of 3 Hours**
6	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

· Anthony & Govindrajan - Management Control Systems (TATA McGraw Hill)
· Maciarirllo & Kirby – Management Control Systems (Prentice Hall India)
· Management Control Systems – N. Ghosh (Prentice Hall India)

Creativity & Innovation Management 100 marks (15 Sessions of 3 Hours Each) Sem IV Core

SL.No	Particulars	Sessions
1	Introduction to Creativity and Innovation Nature of Creativity: Person, Process, Product and Environment Nature of Innovation: Making the Idea a Reality	**2 Sessions of 3 Hours Each**
2	Need for Creativity and Innovation in Organizations Role of Creativity and Innovation in the Organisation Dynamics that underlie Creative Thinking	**3 Sessions of 3 Hours Each**
3	Creative insight: Why do good ideas come to us and when they do? Idea evaluation: What to do with generated ideas? Creativity in Teams	**2 Sessions of 3 Hours Each**
4	Developing and Contributing to a Creative-Innovation Team Managing for Creativity and Innovation Tools and Techniques in Creativity	**2 Sessions of 3 Hours Each**
5	Evolving a Culture of Creativity and Innovation in Organizations Creativity in the Workplace Creativity and Change Leadership	**2 Sessions of 3 Hours Each**
6	Researching/Assessing Creativity Global Perspectives on Creativity	**2 Sessions of 3 Hours Each**
7	Case Studies and Presentations	**2 Sessions of 3 Hours Each**

Reference Text

Innovation Management – Allan Afuah – Oxford Publications
Managing & Shaping Innovation – Steve Conway & Fred Steward – Oxford Publications

MMS SEMESTER – IV
OPERATIONS MAJORS

Strategic Operations Management 15 Sessions of 3 Hours 100 Marks Sem IV Major

SL.No	Particulars	Sessions
1	Introduction: Importance and Linkage with Corporate strategy, Strategies and values, Competing through operations. Operation strategy in global economy- Strategic alliances and production sharing, fluctuations of international financial conditions and international companies. Changing nature of world business. Quality, Customer service and cost challenges and social responsibility, Current perspective-Strategic fit	**3 Sessions of 3 Hours**
2	Methodology for Developing Operations Strategy: Value as business concept – strategic issues in manufacturing – Value Chain concept Focus, core competence and distinctive capabilities – stake holders & strategy, Checking markets, Outcome of Market debate – Linking manufacturing to Markets – strategic integration – why products sell in the markets – Order Winners, Order Qualifiers. Lean systems-Eliminating waste.	**2 Sessions of 3 Hours**
3	Operation Strategy Implementation: Technology strategy Issues in New Product development Time to market – strategic nature of process– Business implication of Process choice – Hybrid Process. Change management and Sustainability	**2 Sessions of 3 Hours**
4	Procedure – company or plant based profiles – decisions for product reallocation – downsizing – Capacity decisions Progression & Regression. Evaluating various tradeoffs alternatives – Focused manufacturing – Product or process focus – Make or Buy – merits /demerits – value chain approach – just in time – lean manufacturing.	**2 Sessions of 3 Hours**
5	Strategic Resource Management: Importance, issues involved – organizational issues operational approaches to improving, delivery system, controlling operations – key performance Indicators, PQCDSM (Productivity, Quality, Cost, Delivery Time, Safety, Morale)	**2 Sessions of 3 Hours**
6	Role of Technology in Operations Strategy: Automated production system with Robotic systems. Use of IT and ITES enabling the effective strategy and resource implementation. ERP/SAP for decision making.	**2 Sessions of 3 Hours**
7	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

Operations Management – An Integrated Approach by Samson and Singh, Cambridge.

Operations Management for Competitive Advantage by Chase, Jacobs, Aquilano and Agarwal, TMGH, 11th Edition.

Operations Management by Norman Gaither, Greg Frazier, Cengage Learning, India Ed.

Project Management 100 Marks (15 Sessions of 3 Hours Each) Sem IV Major

SL.No	Particulars	Sessions
1	**Overview of Project Management** **Basics of Project Management:** Concept of Project, Attributes of a Project,Importance of Project Management, Project Management Process, Project Lifecycle, Project Stakeholders, Project Management Structures, Choosing Appropriate Project Management Structure, Implications of Organizational Culture, Main Causes of Project Failure. **Project Definition:** Defining Scope, Establishing Priorities, Creating the Work Breakdown Structure (WBS), integrating the WBS with the organization, Coding the WBS for information system, Project Roll Up, Process Breakdown Structure, Responsibility Matrices.	**1 Session of 3 Hours**
2	Project Identification :– Selection of product identification of market preparation of feasibility study/report Project formulation -–Evaluation of risks preparation of Project report.	**1 Session of 3 Hours**
3	Selection of location & site of the project – Factors affecting location – policies of Central – State Government towards location – Legal aspects of project management.	**1 Session of 3 Hours**
4	**Project Planning** Estimating Project Times and Costs: Factors Influencing Quality of Estimates, Estimation Guidelines for Time, Costs and resources, Macro versus Micro Estimating, Methods for Estimating Project Times and Costs, Level of detail, Developing Budgets, Types of Costs, Refining estimates andcontingency funds. **Developing a Project Plan:** Developing the Project Network, From Work Package to Network, Constructing a Project Network, Activity-on-Node,Fundamentals, Network Computation process, Using the Forward and Backward pass information, Level of Detail for activities, Extended Network techniques.	**1 Session of 3 Hours**
5	**Project Scheduling & Risk Management** Scheduling Resources and Reducing Project Duration: Types of Project Constraints, Classification of Scheduling Problem, Resource Allocation Methods, Splitting, Multitasking, Benefits of scheduling resources, Assigning Project work, Multi Project resource Schedules, Rationale for reducing project duration, Options for accelerating Project Completion, Concept and construction of a Project Cost – Duration Graph, Practical considerations. **Managing Risk:** Risk Management process – Risk Identification, Risk Assessment, Risk Response Development, Contingency Planning, Risk Response Control, Change Control Management.	**2 Sessions of 3 Hours**

6	**Project Organization:** The Project Manager: Role and Responsibilities of the project Manager, Planning, Organizing, Controlling, Skills of the Project Manager – Leadership Abilities, Coaching & mentoring Abilities, Communication Skills, Interpersonal Skills, Ability to Handle Stress, Problem Solving Skills, Time Management Skills, Delegation, Management of Change. **Managing Project Teams:** The five stage team development model, Situational factors affecting team development, Team effectiveness, Conflict in projects, Sources of Conflict, Handling Conflict. Managing Virtual Project teams, Project team pitfalls.	**1 Session of 3 Hours**
7	**Project Evaluation** Progress and Performance Management and Evaluation: Structure of a Project Monitoring Information System, Project Control Process, Monitoring Time Performance, Need for an Integrated Information System, Developing a status report and index to monitor progress, Forecasting final project cost, Other control issues. **Project Audit and Closure:** Project Audit, Project Audit Process, Project Closure, Team, Team member and Project Manager Evaluations.	**2 Sessions of 3 Hours**
8	Financial Analysis :– Profitability Analysis – Social cost Benefit Analysis preparation of Budget and Cash Flows. Materials Management in Project Planning – Procurement – storage – disposal.	**1 Session of 3 Hours**
9	Financing of the Project :- Source of Finance – Cost implications thereof Financial Institutions –Guidelines for funding projects, Risk Analysis – Sensitivity Analysis.	**1 Session of 3 Hours**
10	Quantitative Aspects of projects :- PERT/CPM Network Analysis for monitoring of the project –Other quantitative techniques for monitoring and Control of project	**1 Session of 3 Hours**
11	Computer Applications: - Selection of software packages for application to Project management.	**1 Session of 3 Hours**
12	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

1. PMP - Project Management Professional - “Study Guide” - By Kimi Heldman
2. Project Management - By S. Choudhary
3. Text Book of Project Management - By P Gopalakrishnan, V. E. Ramamoorthy
4. Project Management - By Prasanna Chandra
5. Project Appraisal - By P. K. Mattoo
6. Project Management - By Vasant Desai
7. Project Management & Appraisal – Sitanshu Khatua – Oxford Publications

MMS SEMESTER – IV
OPERATIONS ELECTIVES

Six Sigma 100 Marks (15 Sessions of 3 Hours Each) Sem IV Elective

SL.No	Particulars	Sessions
1	**Enterprise-wide Deployment** Six Sigma and Lean : Brief history of performance initiatives-Quality Control, TQM, Cost of Quality, Customer quality Management, SPC, Reengineering, Six Sigma, Theory of Constraint, Lean manufacturing.	**2 Sessions of 3 Hours**
2	**Business Process Management** Introduction to Six Sigma-As a metric, As a methodology, As a management System. Six sigma Evolution and approach Lean as a Business Management Strategy, Key elements of lean. Types of lean initiatives, Implementing lean initiatives	**2 Sessions of 3 Hours**
3	**DMAIC model for implementing Six Sigma.** **Define:** Project Selection, Developing the team, DMAIC & DMADV, Deliverables, Tollgate Questions **Measure:** Determining X variables, Cause and Effect Diagram & Matrix, Overview of MSA, Data Collection Plan – Forms, Baselining the y data, DPMO, Capability Indices, COPQ, Yield, Tollgate Questions **Analyze:** Tools for identifying Root Causes: Histogram, Boxplot, Scatter Plot, Matrix Plot, DotPlot, Run Chart, Multi-Vari Chart, 5 Why's	**2 Sessions of 3 Hours**
4	**Improve:** Generating Solutions, Random Simulation, Six Thinking Hats, Mind Mapping, Challenge Assumptions, Decision Making Tools for Selecting Solutions – Pairwise Ranking, Solution Matrix, Force Field Analysis, Costs and Benefits, Pilot Plan, Potential Problem Analysis – Mistake Proofing, Risk Assessment Matrix and Control Assessment Matrix, FMEA, Contingency Plan, Verification Plan, Tollgate Questions **Control:** Solution Planning, Process Control Plan, Review Meetings, Updated flowcharts & procedures, Control Charts, Out Of Control Action Plan, Project Conclusion Activities	**3 Sessions of 3 Hours**

5	**Six Sigma Impact measurement** **Financial and Performance measurement:** Lack of Clear Goals and Metrics linked to Measurable Business Goals, Mismatches between Traditional Accounting and Improvement Campaigns. Metrics That Impact – Revenue Growth, Cost Savings, Productivity Improvement, Reduced Cost of Poor Quality, Cash Flow Improvement, Faster product / service cycle times, Freed up engineering and /or sales / service time, Freed up other indirect time, Cost avoidance savings. Seven Elements of Six Sigma Scorecard	**2 Sessions of 3 Hours**
6	**Six Sigma in non-manufacturing environments:** MSA in the DMAIC Cycle. MSA Psychology. Why Non-Manufacturing Processes are Different, MSA Repeatability & Reproducibility (R&R) Studies. Gauge R & R. Comparison of MSA Acceptance Criteria	**2 Sessions of 3 Hours**
7	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

The Six Sigma Black Belt Handbook by MacCarty, Daniels, Bremer and Gupta, TMGH, 2010 Edition
Juran Institute's Six Sigma Breakthrough and Beyond by De Feo and Barnard, TMGH.

What is Six Sigma? by Peter Pande, TMGH
Six Sigma Management by Blashka, TMGH
All about Six Sigma by Warren Brussee, TMGH.

World Class Manufacturing 100 Marks (15 Sessions of 3 Hours Each) Sem IV Elective

SL.No	Particulars	Sessions
1	**World Class Manufacturing and the Information Age:** The emergence of the Information Age, Competing in the Information Age, Business challenges of the Information Age, Operating Environment of the Information Age, India's global Competitiveness and Manufacturing Excellence, World Class Manufacturing and the Information Age Competition, Manufacturing Challenges of the Information Age – Time based competition, Managing knowledge, Problems in the Manufacturing Industry – Coordination, Need for Control, Fragmented Information Infrastructure, Insufficient process ability of available information.	**2 Sessions of 3 Hours**
2	**Gaining Competitive Advantage through World Class Manufacturing:** Manufacturing Excellence and Competitiveness, What is World Class Manufacturing? Hall's Framework of Value-added Engineering, Schonberger's framework of World Class Manufacturing, Gunn's model of World Class Manufacturing, Maskell's model of World Class Manufacturing, America's best plants model of World Class Manufacturing, Malcolm Baldrige National Quality Award, The Philosophy of World Class Manufacturing, The Evolution of World Class Manufacturing, The first principles of World Class Manufacturing, The Practices of World Class Manufacturing, Quality in World Class Manufacturing.	**3 Sessions of 3 Hours**
3	**Systems and Tools for World Class Manufacturing:** The integration imperative, Overview of systems and tools, Making sense of the manufacturing alphabet soup, Information management tools, Material processing and handling tools. Information management tools – Product and Process Design Tools, Bar Code Systems, Kanban, SQC, Business Integration and Decision Support Tools. Material processing and handling tools – Flexible Manufacturing Systems, Rapid Prototyping, Lean production tools, Poka Yoke, SMED. An assessment of Manufacturing systems and tools.	**2 Sessions of 3 Hours**

4	**World Class Manufacturing – The Indian Scenario:** Competitiveness of Indian Manufacturing, Manufacturing Performance and planned strategies of Indian Manufacturing firms, Manufacturing readiness of Indian Firms, Manufacturing Objectives and strategy, Usage of management tools and technologies, Manufacturing Management Practices, The Manufacturing Strategic Intent Framework, Strategic use of IT in Indian Manufacturing, Classification by breadth of IT infrastructure and depth of manufacturing applications, Classification by breadth and integration of IT infrastructure, Manufacturing Strategy – World class Status and IT Use: Is India Ready for World Class Manufacturing?	**3 Sessions of 3 Hours**
5	**Leading India towards World Class Manufacturing:** Business Strategy and Global Competitiveness, Generic Manufacturing Strategies for the Information Age, Developing strategic thinking in manufacturing, Issues in Strategic planning for World Class Manufacturing, Barriers to using IT strategically, Strategic Planning Methodology for World Class manufacturing, Implementing the World Class Manufacturing Plan, Need for performance measurement – The PO-P System, The TOPP System, The AMBITE System, Quality Performance, Cycle Time, Delivery Performance and Customer Service, Financial Performance Measures, The Balanced Score Card, Human Resource Dimensions in World Class Manufacturing – Morale and Teamwork.	**3 Sessions of 3 Hours**
8	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

1. Toyota Production Systems - Taichi Ohno, Kaizen , Masaki Imai
2. Chronicles of a Quality Detective - Dr Shrinivas Gondhalekar, Payal Sheth
3. Beyond T.Q.M - By Robert L. Flood
4. T.Q.M Process - By Gopal Kanji, Mike Asher
5. Publications of JMAM, viz (Gemba Kaizen, ii)5-S, iii) Total Production Maintenance

World Class Manufacturing – A Strategic Perspective by B.S Sahay, K.B.C Saxena, Ashish Kumar

World Class Manufacturing by K Sridhara Bhat

Service Operations Management 100 Marks (15 Sessions of 3 Hours Each) Sem IV Elective

SL.No	Particulars	Sessions
1	**Services:** Characteristics of Services, Importance of Service Sector, Classification framework, Service Delivery System – Process Flow Diagrams, Process Simulation,	**2 Sessions of 3 Hours**
2	**Site Selection for Services:** Types of Service Firms – Demand Sensitive Services, Delivered Services, Quasi-manufacturing Services, Site Selection for Demand Sensitive Services – Factor Rating, Regression, GIS, Gravity Model of Demand, Site Selection for Delivered Services – Expected Results, Mathematical Solution Methods for delivered services, Site Selection for Quasi- Manufacturing Services – Mixed Linear / Integer Programming for Location Selection	**4 Sessions of 3 Hours**
3	**Yield Management:** Capacity Strategies, Yield Management, Overbooking, Allocating Capacity – Static Methods, Nested Static Methods, Dynamic Methods. Pricing, Implementation issues – Alienating Customers, Customer Class Cheating, Employee Empowerment, Cost and Implementation Time.	**2 Sessions of 3 Hours**
4	**Inventory Management in Services:** Services versus Manufacturing Inventory, Set Up and Ordering Costs, Number of Products, Limited Shelf Space, Lost Sales versus Back Orders, Product Substitution, Demand Variance, Information Accuracy, The Newsvendor Model, Multiple Products and Shelf Space Limitations, Inventory Inaccuracy – Revenue Sharing, Markdown Money, Phantom Stock outs, Inventory Inaccuracy, Shrinkage.	**3 Sessions of 3 Hours**
5	**Offshoring and Outsourcing:** Outsourcing – Contract risk, Outsource Firm Risk and Pricing Risk, Competitive Advantage and Information Privacy Risk, Firm Specific Risks, Offshoring, Quantifying Offshoring, Offshoring and Competitive Capabilities – Cost, Non-cost Issues.	**2 Sessions of 3 Hours**
6	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

Successful Service Operations Management by Metters, King-Metters, Pulliman and Walton, Thomson India Edition, 2nd Edition.

Service Operations Management - Improving Service delivery by Robert Johnston Graham Clark, Prentice Hall

Lean Manufacturing 100 Marks (15 Sessions of 3 Hours Each) Sem IV Elective

SL.No	Particulars	Sessions
1	**History and Modern Applications of Lean Manufacturing:** Popularity of MRP systems and their impact on organizations, Pre-computer Inventory Management tools, Rethinking the MRP Model, The search for Holy Grail of Manufacturing, Lean Manufacturing Model, Kanban Methodology, Sequencing production one piece at a time on the Lean Line, The benefits of embracing lean methodologies for manufacturing, Lean Manufacturing Challenges to the MRP paradigm, The continuous evolution to Lean Manufacturing, The Internet and E-commerce technologies.	**2 Sessions of 3 Hours**
2	**Understanding Products, Processes and Demand:** Determining the scope of initial Lean Manufacturing Implementation Area, Selecting parent parts for the lean line, Establishing the capacity to meet the demand volume of lean implementation area, Sources for determining demand, Documenting the Process flow and establishing mixed product families, Factors impacting throughput volume, Identifying process Demand Levels and Establishing Takt, Numerators and Denominators of Takt time, Documenting process Work elements and quality criteria, Nonvalue added activity and quality considerations, summing the total time of the process.	**4 Sessions of 3 Hours**
3	**Line Layout and Work Station Identification with Process Linking and Balancing:** The consequences of imbalance, The Lean approach to Achieving Balance, Calculating resource requirements, Defining Resources, The physical layout of resources, Assigning tasks for each workstation, the in-process Kanban Signalling methodology, Discipline for maintaining workstation balance, Designing 5S into the line design.	**2 Sessions of 3 Hours**
4	**Kanban Strategies:** The in-process Kanban, The Single Card Kanban System, The Multiple Card Kanban System, Managing inventory with the Kanban System: The advantages & disadvantages of Kanban System, Kanban manager job responsibilities.	**3 Sessions of 3 Hours**
5	**Lean Implementation Mile Stones:** Software requirements for Lean manufacturing methodologies, Commitment to change, Transformation process to Lean manufacturing, Initialization and Project Start-up, Understanding Products, Processes and Materials, Final Check, Line Start-up, Internalize. Organizational impact of Lean Manufacturing,	**2 Sessions of 3 Hours**

	Managing the Lean Manufacturing Line: Managing Line Output to Match Customer Demand, Establishing Customer Response policy, Suboptimizing the Lean line to meet daily rate of demand, flexible operators, Rewarding for Flexibility, Rewarding for Linear Performance, Resistance to change.	
6	Case Studies and Presentations	**2 Sessions of 3 Hours**

Reference Text

Lean Manufacturing Implementation by Dennis P Hobbs, Cengage Learning Co-published with APICS.

Simplified Lean Manufacture – Elements, Rules & Implementation by N Gopalkrishnan, PHI.

Lean Manufacturing That Works by Bill Carreira, PHI, Eastern Economy Edition

Industry Oriented Dissertation Project 100 Marks

Scheme of Assessments for Subjects of 100 Marks

- The Semester end Examination will be conducted for 60 Marks.
- Internal Assessments will be conducted for 40 Marks.

The allocation of 40 marks shall be on the following basis: -

a) Periodical class tests held in the given semester (20 Marks)

b) Presentations throughout the semester (10 Marks)

c) Attendance and Active participation in routine class instructional deliveries (05 Marks)

d) Overall Conduct as a responsible student, mannerism and articulation and exhibition of leadership qualities in organizing related academic activities. (05 Marks)

Note: A Student has to separately secure minimum 50% marks (i.e 20 out of 40) in the internal assessments and secure minimum 50% marks (i.e 30 out of 60) in the Semester End Examination in every subject to be declared as Pass.

Question Paper Pattern for Semester End Examination (60 Marks)

There will be Seven Questions in all.

Q1 would be compulsory and would carry 20 Marks

In addition to Q1, there would be six questions. Each question would carry 10 Marks. Each of these Six Questions will have three sub – questions and each sub – question would carry 05 Marks

Students have to attempt any four out of the remaining six Questions and within each question; students have to attempt any two out of three sub – questions.

In all, students have to attempt five questions i.e (Q1+Any Four of the remaining)

Q1 – 20 Marks (Compulsory)

Attempt Any Four out of the Remaining Six Questions

Q2 (a) ---------- (5 Marks)
(b) ---------- (5 Marks)
(c) ---------- (5 Marks)
Any two from (a) or (b) or (c) ---------- (5x2) = 10 Marks

Q3 (a) ---------- (5 Marks)
(b) ---------- (5 Marks)
(c) ---------- (5 Marks)
Any two from (a) or (b) or (c) ---------- (5x2) = 10 Marks

Q4 (a) ---------- (5 Marks)
(b) ---------- (5 Marks)
(c) ---------- (5 Marks)
Any two from (a) or (b) or (c) ---------- (5x2) = 10 Marks

Q5 (a) ---------- (5 Marks)
(b) ---------- (5 Marks)
(c) ---------- (5 Marks)
Any two from (a) or (b) or (c) ---------- (5x2) = 10 Marks

Q6 (a) ---------- (5 Marks)
(b) ---------- (5 Marks)
(c) ---------- (5 Marks)
Any two from (a) or (b) or (c) ---------- (5x2) = 10 Marks

Q7 (a) ---------- (5 Marks)
(b) ---------- (5 Marks)
(c) ---------- (5 Marks)
Any two from (a) or (b) or (c) ---------- (5x2) = 10 Marks

Credit Based Grading System for MMS Semester End Examinations

Credit Point:

- A Credit Point denotes the quantum of effort required to be put in by a student, who takes up a course. In other words, it is an index of number of learning hours prescribed for a certain segment of learning.

Learning Hours

Learning Hours for Subjects of 100 Marks (60+40)

Learning Hours consist of Classroom teaching hours and other complementary learning activities indicated here below

1) **Classroom teaching hours ((15 Sessions X 3 Hours = 45 Hours))**

2) **Other Complementary learning activities (30 Hours)**

The learning activities consist of the following:

- Reading, Introspection, Thoughtful Reflection, Group Discussions, Lectures, Field Work, Workshops, Counseling Sessions, Watching Educational and Informative Videos, Assignments, Live Projects, Case Studies, Presentations, Preparation for Examinations, Participation in academic and extra – curricular activities, inculcation of industry specific skills and training & development sessions.

- The total learning hours would be thus equivalent to **45+30=75 Hours for subjects of 100 Marks**

Credit Point Computation

- One credit is construed as equivalent to 30 learning hours.

Credit completion and Credit accumulation:

- Each module of an academic program has been assigned specific credit points defining successful completion of the course under study.

- Credit completion or Credit acquisition may be considered to take place after the learner has successfully cleared all the evaluation criteria with respect to a single course.

- A learner who successfully completes a 2.5 CP (Credit Point) course is treated to have collected or acquired 2.5 credits. His performance above the minimum prescribed level (viz. grades / marks obtained) has no bearing on the number of credits collected or acquired.

- A learner keeps on accumulating more credits as he completes additional courses.

Introduction of Grading System at the University of Mumbai

A well designed evaluation system that integrates the aforesaid parameters having due attention to their relative importance in the context of the given academic programme.

What is Grading?

- Grading, in the educational context is a method of reporting the result of a learner's performance subsequent to his evaluation. It involves a set of alphabets which are clearly defined and designated and uniformly understood by all the stake holders.

- A properly introduced grading system not only provides for a comparison of the learners' performance but it also indicates the quality of performance with respect to the amount of efforts put in and the amount of knowledge acquired at the end of the course by the learners.

The Seven Point Grading System

- A series of meetings of all the Deans & Controller of Examinations were held to discuss the system of grading to be adopted at the post graduate level. Mumbai University, subsequently in its Academic Council meeting and in its Management Council meeting resolved to adopt and implement the **Seven (07) Point Grading System** from the academic year 2012-13.

The Grade Point and the grade allocation shall be as per the Grade Table given below:

Proposed Grades for Post Graduate courses 7 Point Scale for POST GRADUATE Courses			
Range of Scores	Grade	Grade Point	CGPA range
75 & above	O	7	6.5 - 7
70 - 74.99	A	6	5.5 - 6.49
65 - 69.99	B	5	4.5 - 5.49
60 - 64.99	C	4	3.5 - 4.49
55 - 59.99	D	3	2.5 - 3.49
50 - 54.99	E	2	2 - 2.49
< = 49.99	F (Fail)	1	< 2

Note: - Consider 1 Grade Point is equal to Zero for CG calculations in respect of failed learner/s in the concerned course/s.

Conversion of Marks to Grades and Calculations of GPA (Grade Point Average)

- In the Credit and Grade Point System, the assessment of individual Courses in the concerned examinations will be only on the basis of marks obtained; however these marks shall be converted later into Grades by a mechanism wherein the overall performance of the Learners can be reflected by the overall evaluation in terms of Grades.

- Abbreviations used for gradation needs understanding of each and every parameter involved in grade computation and the evaluation mechanism. The abbreviations and formulas used are as follows:-

Abbreviations and Formula's Used:-

G: Grade
GP: Grade Points
C: Credits
CP: Credit Points
CG: Credits X Grades (Product of credits & Grades)
∑**CG:** Sum of Product of Credits & Grades points
∑**C:** Sum of Credits points

$$\textbf{SGPA} = \frac{\sum \textbf{CG}}{\sum \textbf{C}}$$

SGPA: Semester Grade Point Average shall be calculated for individual semesters. (It is also designated as GPA)

CGPA: Cumulative Grade Point Average shall be calculated for the entire Programme by considering all the semesters taken together.

Special Point to Note:

While calculating the CG the value of Grade Point 1 shall be considered as Zero (0) in case of learners who failed in the concerned course/s obtaining marks below 50.

After calculating the SGPA for an individual semester and the CGPA for entire programme, the value can be matched with the grade as given in the Grade Point table as per the Seven (07) Points Grading System and expressed as a single designated GRADE such as O, A, B, etc….

The SGPA of learners who have failed in one subject or more than one subjects shall not be calculated.

Illustrations of the Calculations: -

Credit Points and Grading Calculations for MMS First Year First Semester

1 Credit = 30 Learning Hours

Result: - Passing in All Courses with more than 50% Marks

Courses In Semesters	No of Learning Hours	Credits Per Course (C)	Marks Obtained (%)	Grade	Grade Points (G)	∑CG = CxG	SGPA = ∑CG/∑C
Perspective Management	60	2.5	55	D	3	7.5	
Business Communication and Management Information Systems	60	2.5	60	C	4	10	
Organisational Behaviour	60	2.5	70	A	6	15	
Financial Accounting	60	2.5	80	O	7	17.5	**85/20=4.25**
Operations Management	60	2.5	50	E	2	5	
Marketing Management	60	2.5	55	D	3	7.5	
Managerial Economics	60	2.5	65	B	5	12.5	
Business Statistics	60	2.5	63	C	4	10	
Total	480	**∑C=20**					
Credit Earned = 20						**∑CG = 85**	**Grade C**
Passes							

Credit Points and Grading Calculations for MMS First Year First Semester

1 Credit = 30 Learning Hours

Result: - Fails in One Course or More than One Courses with Less than 50% Marks

Courses In Semesters	No of Learning Hours	Credits Per Course (C)	Marks Obtained (%)	Grade	Grade Points (G)	∑CG = CxG	SGPA = ∑CG/∑C
Perspective Management	60	2.5	55	D	3	7.5	
Business Communication and Management Information Systems	60	2.5	60	C	4	10	
Organisational Behaviour	60	2.5	70	A	6	15	
Financial Accounting	60	2.5	80	O	7	17.5	--------
Operations Management	**60**	**2.5**	**45**	**F**	**1**	**0**	
Marketing Management	60	2.5	55	D	3	7.5	
Managerial Economics	30	2.5	65	B	5	12.5	
Business Statistics	60	2.5	63	C	4	10	
Total	480	**∑C=20**					
Credit Earned = 18						**∑CG =80**	**Grade F**
Fails							

- **Note: - Consider 1 Grade Point is equal to Zero for CG calculations of failed learner/s in the concerned course/s.**
- **The student has been awarded 1 Grade Point, even though he has failed in the subject of Operations Management, however, 1 Grade Point is equal to Zero for CG calculations of failed learner/s in the concerned course/s.**
- **The SGPA has not been calculated as the student has failed.**

Credit Points and Grading Calculations for MMS First Year Second Semester

1 Credit = 30 Learning Hours

Result: - Passing in All Courses with more than 50% Marks

Courses In Semesters	No of Learning Hours	Credits Per Course (C)	Marks Obtained (%)	Grade	Grade Points (G)	∑CG = CxG	SGPA = ∑CG/∑C
Cost & Management Accounting	60	2.5	55	D	3	7.5	
Financial Management	60	2.5	60	C	4	10	
Operations Research	60	2.5	70	A	6	15	
Human Resources Management	60	2.5	80	O	7	17.5	
Legal Aspects of Business & Taxation	60	2.5	50	E	2	5	**85/20=4.25**
Business Research Methods	60	2.5	55	D	3	7.5	
Specialisation Elective I	60	2.5	65	B	5	12.5	
Specialisation Elective II	60	2.5	63	C	4	10	
Total	480	**∑C=20**					
Credit Earned = 20						**∑CG = 85**	**Grade C**
Passes							

Credit Points and Grading Calculations for MMS First Year Second Semester

1 Credit = 30 Learning Hours

Result: - Fails in One Course or More than One Courses with Less than 50% Marks

Courses In Semesters	No of Learning Hours	Credits Per Course (C)	Marks Obtained (%)	Grade	Grade Points (G)	∑CG = CxG	SGPA = ∑CG/∑C
Cost & Management Accounting	60	2.5	55	D	3	7.5	
Financial Management	60	2.5	60	C	4	10	
Operations Research	60	2.5	70	A	6	15	
Human Resources Management	60	2.5	80	O	7	17.5	
Legal Aspects of Business & Taxation	**60**	**2.5**	**45**	**F**	**1**	**0**	--------
Business Research Methods	60	2.5	55	D	3	7.5	
Specialisation Elective I	30	2.5	65	B	5	12.5	
Specialisation Elective II	60	2.5	63	C	4	10	
Total	480	**∑C=20**					
Credit Earned = 18						**∑CG =80**	**Grade F**
Fails							

- **Note: - Consider 1 Grade Point is equal to Zero for CG calculations of failed learner/s in the concerned course/s.**
- **The student has been awarded 1 Grade Point, even though he has failed in the subject of Legal Aspects of Business & Taxation, however, 1 Grade Point is equal to Zero for CG calculations of failed learner/s in the concerned course/s.**
- **The SGPA has not been calculated as the student has failed.**