

C36

OPERATIONS RESEARCH

COURSE INFORMATION SHEET

PROGRAMME : MBA	DEGREE: MBA
COURSE: OPERATIONS RESEARCH	TRIMESTER: 3
COURSE CODE: :C36	COURSE TYPE: CORE
COURSE AREA/DOMAIN: MANAGEMENT	CONTACT HOURS: 3+0(Tutorial) Hrs per week
Corresponding LAB COURSE CODE: NIL	LAB COURSE NAME: NIL

SYLLABUS

MODULE	COURSE	HOUR
I	Introduction to Operations Research: Origin and growth of OR, importance of OR in managerial decision making, scope & applications of OR, models and modelling in OR. Linear programming problems: Formulation of the problem, solution by graphical method & simplex algorithm, degeneracy in LPP. Case discussion	9
II	Allocation Problem models: Transportation problems: formulation, methods of finding initial solution (North West Corner Rule, Least Cost Method and Vogel's Approximation Method), test for optimality (MODI Method), unbalanced transportation problems, maximization transportation problem. Assignment problems: formulation, methods of solution, Hungarian method, multiple optimal solutions, unbalanced problems, maximization problems. Case analysis	10
III	Duality in LPP, revised simplex method, Sensitivity of optimal LP solutions	8
IV	Decision theory: Concepts of decision making, decision making environments, Decision making under uncertainty - Decision making under risk, decision tree analysis. Case discussion. Dynamic Programming - Concepts, forward and backward recursion, solution to LPP by dynamic programming method. Concepts of network analysis, project network models, Critical Path Method, PERT, project time-cost trade off, resource scheduling, Crashing. Case discussion	10
V	Game Theory: Two person zero-sum game, saddle point games, principle of dominance, graphical solution. Replacement analysis: items that deteriorate over time, items that fail suddenly, optimum replacement policies for both cases. Queuing model structure, Kendall Lee notation - M/M/1 queues - standard problems.	10

TEXT/REFERENCE BOOKS

T/R	BOOK TITLE/AUTHORS/PUBLICATION
T	Hillier, F S, et al. Introduction to Operations Research (9/e). Tata McGraw Hill, 2011.
T	Ravindran, A and Don T Phillips. Operations Research: Principles and Practice. John Wiley & Sons, 1987.
T	Sharma, J K. Operations Research: Theory and Applications (5/e). New Delhi: Laxmi Publications, 2013.
	Taha, Hamdy A. Operations Research: An Introduction (9/e). Prentice Hall, 2010.
	Vohra, N D. Quantitative Techniques for Management. Tata McGraw Hill Education, 2015.

COURSE OBJECTIVES

- The student get knowledge about the scope and application of operations research in business and industry
- Exposes the student to use of various scientific tools and models
- To get knowledge about various decision making through OR models
- To familiarize with the software in business problem solving

COURSE OUTCOME

CO1-Enable the students to generate mathematical models of business scenarios

CO2-The student should have the ability to analyze the business situations.

CO3-The students will become able to use different mathematical models and the solution procedures.

CO PO MAPPING

	P1	P2	P2	P4	P5	P6	P7	P8
CO1	H						M	
CO2		H		M	M			
CO3		H						
CO4		H		H				
C36		H		M	M		L	

JUSTIFICATION FOR MAPPING

MAPPING	CORRELATION	JUSTIFICATION
CO1-PO1	H	Helps in integrating multidiscipline's OR having applications in every field of business
CO1-PO7	M	For every entrepreneur it is essential to have knowledge about mathematical business models.it helps to evaluate business situations
CO2-PO2	H	It utilizes critical thinking skills in managerial issues
CO2-PO4	H	It having practical experiences
CO2-PO5	M	For solution of business problems different OR tools can be used
CO3-PO2	H	For constructing mathematical models critical thinking and understanding in managerial issues are required
CO4-PO2	H	Critical thinking is required to solve the mathematical models
CO4-PO4	H	Practical learning is carried out for formulating the mathematical models and solving it

DELIVERY/INSTRUCTIONAL METHODOLOGIES

CHALK & TALK ■	STUD: ASSIGNMENT ■	WEB RESOURCES
LCD/SMART BOARDS ■	STUD: SEMINARS	ADD ON COURSES

ASSESSMENT METHODOLOGIES - DIRECT

ASSIGNMENTS ■	STUD: SEMINARS	TESTS/MODEL EXAMS ■	UNIV. EXAMS ■
STUD: LAB PRACTICES	STUD: VIVA	MINI/MAJOR PROJECTS	CERTIFICATIONS
ADD ON COURSES	OTHERS		

ASSESSMENT METHODOLOGIES – INDIRECT

ASSESSMENT OF COURSE OUTCOMES ■ (BY FEED BACK, ONCE)	STUDENT FEED BACK ON FACULTY (TWICE) ■
ASSESSMENT OF MINI/MAJOR PROJECTS BY EXT.EXPERTS	OTHERS

COURSE EXIT SURVEY (Response is given in 5 point scale)

5 -strongly agree, 4 – agree, 3- neither agree nor disagree, 2- disagree, 1- strongly disagree

Sl No	Statement	Response
1	The student able to create mathematical business models	
2	The student able analyse business situations	
3	The student able to different mathematical models	
4	Able to solve various business models	

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OPERATIONS MANAGEMENT

COURSE INFORMATION SHEET

PROGRAMME : MBA	DEGREE: MBA
COURSE: OPERATIONS MANAGEMENT	TRIMESTER: 2
COURSE CODE: :C24	COURSE TYPE: CORE
COURSE AREA/DOMAIN: MANAGEMENT	CONTACT HOURS: 3+0(Tutorial) Hrs per week
Corresponding LAB COURSE CODE: NIL	LAB COURSE NAME: NIL

SYLLABUS

MODULE	COURSE	HOUR
I	Operations Management: Production-systems concept, transformation process, difference between products and services, 5P's and 9M's of OM, Operations as service. Evolution of OM - Craft, Mass and Lean Production. Operations strategy: Operations strategy in manufacturing, Operations strategy in services. Process Analysis: Process Flowcharting, Types of process, process performance metrics	8
II	Employee productivity: Productivity and the organization, variables affecting labour productivity, Capacity- capacity utilization Work study Method study-work measurement techniques. Quality: Total Quality Management Defined Malcolm Baldrige National Quality Award, Quality Specifications, Costs of Quality, Continuous Improvement, SPC Tools, Benchmarking, Fail-safing ISO 9000, six sigma-Mumbai Dabbawallas.	9
III	Materials management-Stores management, maintenance management, Inventory management, types of inventory, classification - ABC analysis, VED analysis, FSN analysis, HML analysis, Inventory costs, inventory models - EOQ, safety stocks, Re-order point, Problems in Basic EOQ model.	9
IV	Managerial use of Break-even analysis and make or buy Decisions Facility planning and plant layout, cellular manufacturing Supply Chain strategy: Elements of supply chain - Measuring supply chain performance, bull whip effect, outsourcing, mass	9

	customization.	
V	Master Production Scheduling (MPS), Materials Requirement Planning (MRP), Manufacturing Resource Planning (MRP II), Rough Cut Capacity Planning (RCCP), ERP. Contributions of Japanese Manufacturing Kanban, Kaizen, Poka Yoke, JIT, 5S - TPS - Lean Manufacturing World Class Manufacturing: Principles of WCM- Computer Integrated Manufacturing, Flexible Manufacturing Systems, Group Technology and Cellular Manufacturing, Quick Response manufacturing, concurrent engineering	10

TEXT/REFERENCE BOOKS

T/R	BOOK TITLE/AUTHORS/PUBLICATION
T	Adam, Everette E and Ronald J Ebert. Production and Operations Management: Concepts, Models, and Behavior. PHI, 2010.
T	Aswathappa, K and Sridhara Bhat. Production and Operations Management. Himalaya Publishing House, 2010.
T	Bozarth, Cecil. Introduction to Operations and Supply Chain Management (3/e). Pearson, 2011.
T	Chase, Richard B. Operations Management for Competitive Advantage. Tata McGraw Hill, 2004.
T	Chunawala, S A. Basics of Production and Operations Management. Himalaya Publishing House, 2001.
T	Finch, Byron J. Operations Now: Supply Chain Profitability and Performance. McGraw Hill, 2007.
T	Gaither, Norman G and Greg Frazier. Operations Management. Cengage Learning, 2002.
T	Garg, Ajay K. Production and Operations Management. Tata McGraw Hill, 2012.
T	Hill, Terry. Operations Management. Palgrave Macmillan, 2006.
T	Kachru, Upendra. Production and Operations Management. Excel Books, 2007.
T	Mahadevan, B. Operations Management: Theory and Practice. Pearson Education India, 2010.
T	Russell, Robert S and Bernard W Taylor. Operations Management: Along the Supply Chain (6/e). Wiley India, 2009.
T	Stevenson, William J. Operations Management. McGraw Hill, 2011.

COURSE OBJECTIVE

- Understand the manufacturing operations of a firm
- Learn and understand sales and operations planning, MRP, Lean manufacturing
- Deeper understanding on quality management tools for process improvement

COURSE OUTCOME

CO1-Ability to analyze manufacturing operations of a firm

CO2-Understand and apply sales and operations planning

CO3- Understand supply chain operations

CO4-Basic understanding on quality improvement techniques.

CO5-Understanding about new technologies and trends in manufacturing

CO PO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H						M	
CO2	H			H			M	
CO3				M				
CO4				M				
CO5					H			
C24	H			H			M	

JUSTIFICATION FOR MAPPING

MAPPING	CORRELATION	JUSTIFICATION
CO1-PO1	H	Helps to understand the basic knowledge in operations management
CO1-PO7	M	Helps in developing entrepreneurial skills
CO2-PO1	H	It creates knowledge in multidisciplinary business areas
CO2-PO4	H	It helps in creating practical knowledge among students
CO2-PO7	M	It helps to generate entrepreneurial skills
CO3-PO4	M	Helps to understand practical knowledge
CO4-PO4	M	Helps in developing entrepreneurial traits
CO5-PO5	M	Helps to understand business related problems and solutions

DELIVERY/INSTRUCTIONAL METHODOLOGIES

CHALK & TALK ■	STUD: ASSIGNMENT ■	WEB RESOURCES
LCD/SMRT BOARDS ■	STUD: SEMINARS	ADD ON COURSES

ASSESSMENT METHODOLOGIES - DIRECT

ASSIGNMENTS ■	STUD: SEMINARS	TESTS/MODEL EXAMS ■	UNIV. EXAMS ■
STUD: LAB PRACTICES	STUD: VIVA	MINI/MAJOR PROJECTS	CERTIFICATIONS
ADD ON COURSES	OTHERS		

ASSESSMENT METHODOLOGIES – INDIRECT

ASSESSMENT OF COURSE OUTCOMES ■ (BY FEED BACK, ONCE)	STUDENT FEED BACK ON FACULTY (TWICE) ■
ASSESSMENT OF MINI/MAJOR PROJECTS BY EXT.EXPERTS	OTHERS

COURSE EXIT SURVEY (Response is given in 5 point scale)

5 -strongly agree, 4 – agree, 3- neither agree nor disagree, 2- disagree, 1- strongly disagree

SI No	Statement	Response
1	The student have the ability to analyze manufacturing operations of a firm	
2	The student able to Understand and apply sales and operations planning	
3	The student have basic understanding on quality improvement techniques	
4	Able to Understand supply chain operations	
5	The student have understanding about new technologies and trends in manufacturing	

HR-T5-8
COMPENSATION MANAGEMENT

COURSE INFORMATION SHEET

PROGRAMME : MBA	DEGREE: MBA
COURSE: COMPENSATION MANAGEMENT	TRIMESTER: 5
COURSE CODE: HR-T5-8	COURSE TYPE: CORE
COURSE AREA/DOMAIN: MANAGEMENT	CONTACT HOURS: 3+0(Tutorial) Hrs per week
Corresponding LAB COURSE CODE: NIL	LAB COURSE NAME: NIL

SYLLABUS

MODULE	COURSE	HOUR
I	Compensation Framework and Theories Conceptual Framework of Compensation Management: Meaning of wage , Minimum wage , Fair wage , Living wage , Money wage, Take home pay, Difference between wages and salary, Concept and Components of Wages; Components of compensation; Theories of wages: Subsistence theory, Wage Fund Theory, Marginal Productivity theory, Residual claimant theory, Bargaining theory.	9
II	Wage and Pay systems Principles of wage and salary administration, Job Evaluation - meaning, principles, methods, limitations, importance, Systems of payment: Time rate system, piece rate system, Incentive payments. Fringe benefits, Fringe benefits tax (FBT); Cost to the company (CTC) – calculation and computing.	9
III	Wage Fixation Criteria of wage fixation. Methods of Payment, Broad- banding, Performance based pay systems, Knowledge based pay system, market based pay system, Incentive based pay system, Types of incentive plans; Executive compensation; Wage Policy in India, Methods of wage determination in India, The Pay Commission, Wage Boards and Tribunals: Structure, Scope and functions, Role of Collective bargaining in wage determination, Minimum Wages Act 1948; Emerging trends of compensation management in IT industries.	10
IV	Expatriate Compensation Expatriate assignment approaches - Fringe benefits, Career management of expatriates, Job pricing, Expatriate reward models, Cost-of-living data, expatulator and calculations, Taxation and the expatriate, Repatriation and reintegration; Expatriate management systems; success factors.	8
V	Social Security and Retirement Benefits Social Security, definition, concept, approaches, Employees' Provident Fund Scheme, Employees' Deposit Linked Insurance Scheme, Employees' Pension Scheme, Pension Fund, Payment of gratuity, Participatory/Contributory Pension; Employee State	9

	<p>Insurance Corporation (ESIC). Design of Pay structures Pay structures – concept, measuring the Market; Pay Mechanics (Structure Design) - Pay mechanics; Number of grades - career bands, broad grades and narrow bands; Pay ranges - Pay slopes -Pay overlap (current practices)- Smoothing the pay curve - techniques and guidance on best practice; Positioning Staff in the Pay Scale - Options for employees below minimum of pay scale, Options for employees above maximum of pay scale, Market premiums - guidance on types of premium and when they are necessary; Reviewing the Pay Scale & Pay structure - Timing and frequency, Impact of market movement and inflation, other factors – External & Internal factors that affects the pay scale of an organization.</p>	
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TEXT/REFERENCE BOOKS

T/R	BOOK TITLE/AUTHORS/PUBLICATION
T	Armstrong , Michel and Murlis , Helen, Reward Management : A Handbook of Salary Administration, Kogan Page Ltd, 1988
T	S.S. Upadhyay, Compensation Management: Rewarding Performance, Global India Publications, 2009
T	Mark Bussin, Expatriate Compensation: A practical and informative textbook for managing expatriate compensation, mobility, and international assignments in the world of work, Knowres Publishing, 2015
T	A.M. Sharma, Understanding Wage and Compensation System, Himalaya Pub.House, 2014
T	Designing Pay Levels, Mix and Pay Structures. http://business.uni.edu/mitra/chap08.pdf
J	How to build Pay Grades and Salary Ranges, http://resources.payscale.com/rs/payscale/images/2013How-to-Build-Pay-Grades-and-Salary-Ranges.pdf
J	How to Set Competitive Compensation Structures, http://downloads.erieri.com.s3.amazonaws.com/pdf/How_to_Set_Competitive_Compensation_Structure s.pdf
T	Hendorson , Richard I. Compensation Management : Rewarding Performance in Modern Organization, Prentice Hall, 1988
T	Lance Berger and Dorothy Beger, The Compensation Handbook, Sixth Edition: A State-of-the-Art Guide to Compensation Strategy and Design, McGraw-Hill Professional, 2015
T	A.K. Sharma, Labour Economics, Anmol Publications Pvt. Ltd, 2006
T	K.N. Subramoniam, Wages in India, McGraw-Hill Inc, 1977
T	A.I. Fonseca, Wage Issues in a Developing Economy : An Indian Experience, Oxford University Press, 1964
T	B.D. Singh, Compensation and Reward Management, Excel Books, 2012
T	Richard I. Henderson, Compensation Management in a Knowledge Based World, Pearson Education, 2007

T	Ten Steps For Building A Salary Structure, http://internationalhrforum.com/2010/07/29/ten-steps-forbuilding-a-salary-structure/
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COURSE OBJECTIVES

- Analyse, integrate, and apply the knowledge to solve compensation related problems in organizations.
- To learn basic compensation concepts and the context of compensation practice
- To learn the concepts of Payment and employee benefits issues for contingent workers.
- To understand the Legally required employee benefits.
- To learn some of the implications for strategic compensation and possible employer approaches to managing legally required benefits

COURSE OUTCOMES

CO1-Apply the pay model to understand how and why pay systems work.

CO2- Explain how organizations develop and implement pay systems.

CO3.-Recognize the effect of law and regulation on compensation and benefit practices.

CO PO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1		H		H			M	
CO2				H			M	
CO3			H	H			M	
HR-T5-8	M			H			M	

JUSTIFICATION FOR MAPPING

MAPPING	CORRELATION	JUSTIFICATION
CO1-PO2	H	Critical thinking skill is developed while dealing with

		compensation related issues
CO1-PO4	H	Practical learning skills enhanced while dealing with the problems related to compensation
CO1-PO7	M	It enhances the entrepreneurial skills
CO2-PO4	H	Practical learning skills enhanced while dealing with the problems related to compensation
CO2-PO7	M	It enhances the entrepreneurial skills
CO3-PO3	H	Lifelong learning regarding laws
CO3-PO4	H	Practical learning skills enhanced while dealing with the problems related to compensation
CO3-PO7	M	It enhances the entrepreneurial skills

DELIVERY/INSTRUCTIONAL METHODOLOGIES

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LCD/SMART BOARDS ■	STUD: SEMINARS	ADD ON COURSES

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COURSE EXIT SURVEY (Response is given in 5 point scale)

5 -strongly agree, 4 – agree, 3- neither agree nor disagree, 2- disagree, 1- strongly disagree

Sl No	Statement	Response
1	The student able to analyse pay structure	
2	The student able to develop pay structure	
3	The student able to understand how to develop and implement pay structure	
4	Able to understand the concept expatriate compensation	
5	Able to understand law and regulations on compensation and benefits	