

Programme Name	Master of Commerce
Semester	Third
Paper No	3.53
Course Code	
Course Name	Operational Research
Course Type	Soft Skill Course
Effective from	JUNE 2012
Objective	To introduce the important ideas in operation research which are both fundamental and long lasting. To provide the theoretical aspects of the subject with practical application to real-life industrial, business problems with some changes as per the requirements.

Unit No.	Topic No.	Content	Hrs.	Marks W + %	Credit
1	01	Introduction to Operations Research Definitions of O.R., Nature and Scope of O.R., Phases of O.R., Different types of Models in O.R., Iconic or Physical models, Analogue or Schematic models, Symbolic models, Deterministic models, Probabilistic models, General models, Dynamic models, Heuristic models, Types of Mathematical models, Advantages of Models, Decision theory, Decision making under certainty, Risk and Uncertainty conditions - Introduction, Applications of O.R. in the fields of Marketing, Finance, Planning, Research Development Techniques, Limitations of O.R., O.R. in India.	15	25	01
2	02	Linear Programming Definitions of Linear Programming, Linear Programming as an Optimization Technique, Structure of an L.P. problem, Formulations of L.P. problem, Graphical Method, Simplex method for Maximization problem, Big-M method for Minimization case, Degeneracy, Unbounded, Infeasible and Alternative Solution cases, Advantages and Limitations of Linear Programming, Applications Of L.P.: Production planning problem, Advertising Media Selection problem, Oil Refinery Blending problem, Product Mix problem.	15	25	01
3	03	Transportation Problem and Assignment Problem Transportation Model, Formulation of Transportation Problem as an L.P. model, Vogel's approximation Method, Modified Distribution Method, Optimality	15	25	01

		Tests, Degeneracy in T.P., Unbalanced T.P., Assignment Problem: Formulation, Hungarian Method, Constrained Assignment Problem, Applications of Transportation and Assignment Problems, Traveling Salesman Problem.			
4	04	Theory of Games and Sequencing Problems Study of Two Person Zero-sum Game Problems, Games with and without Saddle point, Principles of Dominance, Graphical method, Conversion of Game problem into an L.P. problem, Problem of Sequencing: Sequencing of n jobs on two and three machines, Applications of Game theory and Sequencing problems.	15	25	01

References:

1. Sharma J.K.: "Introduction to Operations Research" Mc Milan.
2. Taha H. A.: "Operations Research - An Introduction" Pearson Education
3. Hiller and Lieberman: "Operations Research" Tata Mc. Graw Hill
4. Vohra N.D.: 'Quantitative Techniques for Management' Tata Mc. Graw Hill
5. Sharma J. K. : "Operations Research: Problems & Solutions" McMillan
6. Kapoor V.K.: "Problems and Solutions in Operations Research" S. Chand