I> Course Content:

Semester	2
Subject	Decision Models in Management
Course Code	MMSC205
Credits	2
Duration	30 hours

Module (Syllabus as per new Syllabus):

Sr. No.	Content	Course Outcomes
1	Introduction to Operations Research Definition of OR, Features of OR, OR-Quantitative Approach to Decision-making, Methodology of Operations Research, Application of Operations Research	MMSC205.1; MMSC205.2
2	Linear Programing: Formulation and Graphical Solutions Structure and assumptions of LP model, Application areas of LP, Guidelines for LP model formulation Two variable LP model, Graphical LP model (maximization and minimization), Duality and Sensitivity Analysis	MMSC205.3; MMSC205.6
3	Assignment Problem (AP1): Mathematical Model of Assignment Problem, Enumeration Method, Transportation Method	MMSC205.3
4	Assignment Problem (AP2): Simplex Method and Interpretation (Maximization and Minimization (two phase and Big M), Hungarian Method (Steps and numerical)	MMSC205.3; MMSC205.6
5	Transportation Problem (TP1): Methods for finding initial solution: Vogel's Approximation Method (VAM), Northwest Corner Method, Least cost methods (LCM), Application areas of TP	MMSC205.3
6	Transportation problem (TP2): Optimal Solution: The Stepping Stone Method, Modified Distribution (MODI) Method and special cases	MMSC205.3; MMSC205.6

7	Game Theory Introduction to Game Theory, 2 person zero sum game, Pure Strategies (Games with Saddle points), Limitation and Application of Game Theory, Rule of dominance	MMSC205.2
8	Decision TheoryIntroduction, Steps in decision makingprocess,types of decision environment (Undercertainty, under risk, under uncertainty) , Decisionmaking under uncertainty (optimism (maximax orminimin), pessimism (maximin or minimax), equalprobabilities (laplace), coefficient of optimism(hurwicz), regret (savage)), Decision tree	MMSC205.4
9	Queuing Theory Introduction, structure of queuing system (arrival process, service system, speed of service, queue structure (FIFO, LIFO, Service in Random order, Priority Service), Queuing models (deterministic and probabilistic model theory)	MMSC205.1; MMSC205.2
10	Sequencing Problem Sequencing Techniques using Johnsons' Rule (processing n jobs through 2 machine, 3 machines and m machines)	MMSC205.3; MMSC205.6

Decision Models in Management
Sem II

II> Course Outcomes

Course Code	**Course Outcomes** **Students will be able to….**	**Cognition**
MMSC205.1	RELATE basic concepts of operations research	Remember
MMSC205.2	TRANSLATE the concepts of operations research and connect with business scenarios	Understand
MMSC205.3	APPLY optimization techniques for decision making in business	Apply
MMSC205.4	EVALUATE various scenarios of management and business using decision models	Evaluate
MMSC205.5	PRIORITIZE solutions to the business problems related to operations research	Analyze
MMSC205.6	FORMULATE innovative solutions related to decision models	Create

Text Books:

Sr. No.	**Books**
1	Operation Research – An introduction- Hamdy Taha, Prentice Hall of India
2	Quantitative Techniques in Management –N. D. Vohra, Tata McGraw Hill
3	Operations Research Theory and Applications- J. K. Sharma, Macmillan Business books

Reference Books:

Sr. No.	**Books**
1	Principles of Operations Research –Wagner, Prentice Hall of India
2	Operations Research- Hilier, Liberman, Tata McGraw Hill
3	An introduction to Management Science – Anderson Sweeney Williams, Cengage Learning