OPERATION RESEARCH

Written by Administrator
Wednesday, 04 November 2009 07:24 -

Subject Code

:

06ME74

IA Marks

:

25

No.   of Lecture Hrs./ Week

:

04

Exam   Hours

:

03

Total   No. of Lecture Hrs.

:

52

Exam   Marks

:

100

PART - A

Unit - 1

Introduction: Linear programming, Definition, scope of Operations Research (O.R) approach and limitations of OR Models, Characteristics and phases of OR Mathematical formulation of L.P. Problems. Graphical solution methods.

6 Hours

Unit - 2

Linear Programming Problems: The simplex method - slack, surplus and artificial variables. Concept of duality, two phase method, dual simplex method, degeneracy, and procedure for resolving degenerate cases.

7 Hours

Unit - 3

Transportation Problem: Formulation of transportation model, Basic feasible solution using different methods, Optimality Methods, Unbalanced transportation problem, Degeneracy in transportation problems, Applications of Transportation problems. Assignment Problem: Formulation, unbalanced assignment problem, Traveling salesman problem.

7 Hours

Unit - 4

Sequencing: Johnsons algorithm, n - jobs to 2 machines, n jobs 3machines, n jobs m machines without passing sequence. 2 jobs n machines with passing. Graphical solutions priority rules.

6 Hours

PART - B

Unit - 5

Queuing Theory: Queuing system and their characteristics. The M/M/1 Queuing system, Steady state performance analysing of M/M/ 1 and M/M/C queuing model.

6 Hours

Unit - 6

PERT-CPM Techniques: Network construction, determining critical path, floats, scheduling by network, project duration, variance under probabilistic models, prediction of date of completion, crashing of simple networks.

7 Hours

Unit - 7

Game Theory: Formulation of games, Two person-Zero sum game, games with and without saddle point, Graphical solution (2x n, m x 2 game), dominance property.

7 Hours

Unit - 8

Integer programming: Gommory's technique, branch and bound lgorithm for integer programming problems, zero one algorithm

6 Hours

Text Books:

1. **Operations   Research and Introduction,** Taha   H. A. – Pearson Education edition

2. **Operations   Research**, S. D. Sharma   –Kedarnath Ramnath & Co 2002.

Reference Books:

1.   **"Operation Research"** AM Natarajan, P. Balasubramani, A Tamilaravari Pearson 2005

2.   **Introduction to operation research,** Hiller and liberman, Mc Graw Hill. 5th edition 2001.

3.   **Operations Research:** Principles and practice: Ravindran, Phillips & Solberg, Wiley India lts, 2nd Edition 2007

4.   **Operations Research,** Prem Kumar Gupta, D S Hira, S Chand Pub, New Delhi, 2007