BCA2C04 - Operations Research

Course Number:13

Contact Hours per Week: 4

Number of Credits: 3

Number of Contact Hours: 64Hrs.

Course Evaluation: Internal – 15 Marks + External – 60 Marks

Objective

To get a general introduction in solving linear programming problems.• To get a general understanding of network analysis technique.• To get a general understanding of different mathematical models.•

UNIT I (12T)

Operation research and LPP: Operation Research and Decision making, Advantages of O.R approach in decision making, Application of O.R, uses and limitations of O.R.

UNIT II (14T)

LPP: Introduction, mathematical formulation the problem, canonical and standard forms of LPP. Simplex method, artificial variable technique - Big M and two phase method - problem of degeneracy - concept of duality - dual simplex method.

UNIT III (12T)

Transportation model - North West corner rule, Least cost method, Vogel‟s approximation method - loops in transportation table - Degeneracy in transportation table - Transshipment problem.

UNIT IV (12T)

Assignment model: Mathematical formulation of the problem - assignment algorithm impossible algorithms - travelling salesman problem

UNIT V (14T)

Network Scheduling: Concept of network, basic components, PERT and CPM, Rules of network construction, maximal flow problem, project scheduling critical path calculations, advantages of network (PERT/CPM). Sequencing models: processing n jobs through two machines, n jobs through three machines, two jobs through m machines.

Textbook

1.Operation Research, Kanti Swarup, Gupta P.K Man Mohan, Sultan Chand & Sons

References:

1. Operation Research: An Introduction, Tahah. A, McMillan 1982

2. Operations Research, Prof. K. Venogopal, Calicut University Central Co-Operative Stores