

MC5401 RESOURCE MANAGEMENT TECHNIQUES

DETAILED SYLLABUS

OBJECTIVES:

- To provide the concept and an understanding of basic concepts in Operations Research Techniques for Analysis and Modeling in Computer Applications.
- To understand, develop and solve mathematical model of linear programming problems
- To understand, develop and solve mathematical model of Transport and assignment problems
- To Understand network modeling for planning and scheduling the project activities

UNIT I LINEAR PROGRAMMING MODELS

Mathematical Formulation - Graphical Solution of linear programming models – Simplex method – Artificial variable Techniques.

UNIT II TRANSPORTATION AND ASSIGNMENT MODELS

Mathematical formulation of transportation problem- Methods for finding initial basic feasible solution – optimum solution - degeneracy –Mathematical formulation of assignment models – Hungarian Algorithm.

UNIT III INTEGER PROGRAMMING MODELS

Formulation – Gomory’s IPP method – Gomory’s mixed integer method – Branch and bound technique.

UNIT IV SCHEDULING BY PERT AND CPM

Network Construction – Critical Path Method – Project Evaluation and Review Technique – Resource Analysis in Network Scheduling

UNIT V QUEUEING MODELS

Characteristics of Queuing Models – Poisson Queues - $(M / M / 1)$: $(FIFO / \infty / \infty)$, $(M / M / 1)$: $(FIFO / N / \infty)$, $(M / M / C)$: $(FIFO / \infty / \infty)$, $(M / M / C)$: $(FIFO / N / \infty)$ models.

REFERENCES:

1. A.M. Natarajan, P. Balasubramani, A. Tamilarasi, "Operations Research", Pearson Education, Asia, 2005
2. Gross, D. and Harris, C.M., "Fundamentals of Queueing Theory", Wiley Student, 3rd Edition, New Jersey, 2004
3. Ibe, O.C. "Fundamentals of Applied Probability and Random Processes", Elsevier, U.P., 1st Indian Reprint, 2007
4. John W. Chinneck "Feasibility and Infeasibility in Optimization Algorithms and Computational Methods" Springer, 2008.
5. N. D Vohra, Quantitative Techniques in Management, Tata Mcgraw Hill, 2010
6. Prem Kumar Gupta, D.S. Hira, "Operations Research", S. Chand & Company Ltd, New Delhi, 3rd Edition, 2008
7. Ravindran, Phillips, Solberg, "Operations Research: Principles And Practice", 2nd ED, John Wiley & Sons, 2007
8. Taha H.A., "Operations Research: An Introduction "8th Edition, Pearson Education,