ME6015 OPERATIONS RESEARCH

DETAILED SYLLABUS

UNIT I LINEAR MODELS

The phase of an operation research study – Linear programming – Graphical method– Simplex algorithm – Duality formulation – Sensitivity analysis.

UNIT II TRANSPORTATION MODELS AND NETWORK MODELS

Transportation Assignment Models –Traveling Salesman problem- Networks models – Shortest route – Minimal spanning tree – Maximum flow models –Project network – CPM and PERT networks – Critical path scheduling – Sequencing models.

UNIT III INVENTORY MODELS

Inventory models – Economic order quantity models – Quantity discount models – Stochastic inventory models – Multi product models – Inventory control models in practice.

UNIT IV QUEUEING MODELS

Queueing models - Queueing systems and structures – Notation parameter – Single server and multi server models – Poisson input – Exponential service – Constant rate service – Infinite population – Simulation.

UNIT V DECISION MODELS

Decision models – Game theory – Two person zero sum games – Graphical solution- Algebraic solution– Linear Programming solution – Replacement models – Models based on service life – Economic life– Single / Multi variable search technique – Dynamic Programming – Simple Problem.

TEXT BOOK

1. Taha H.A., “Operations Research”, Sixth Edition, Prentice Hall of India, 2003.

REFERENCES

1. Shennoy G.V. and Srivastava U.K., “Operation Research for Management”, Wiley Eastern, 1994.

2. Bazara M.J., Jarvis and Sherali H., “Linear Programming and Network Flows”, John Wiley, 1990.

3. Philip D.T. and Ravindran A., “Operations Research”, John Wiley, 1992.

4. Hillier and Libeberman, “Operations Research”, Holden Day, 1986

5. Budnick F.S., “Principles of Operations Research for Management”, Richard D Irwin, 1990.

6. Tulsian and Pasdey V., “Quantitative Techniques”, Pearson Asia, 2002.

OBJECTIVES

To provide knowledge and training in using optimization techniques under limited resources for the engineering and business problems.