Diploma, Anna Univ UG & PG Courses

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MG8491 OPERATIONS RESEARCH

DETAILED SYLLABUS

OBJECTIVE:

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

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. Hillier and Libeberman, "Operations Research", Holden Day, 2005

2. Taha H.A., "Operations Research", Sixth Edition, Prentice Hall of India, 2003.

REFERENCES:

1. Bazara M.J., Jarvis and Sherali H., "Linear Programming and Network Flows", John Wiley, 2009.

2. Budnick F.S., "Principles of Operations Research for Management", Richard D Irwin, 1990.

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

4. Shennoy G.V. and Srivastava U.K., "Operation Research for Management", Wiley Eastern, 1994.