Subject Code : RACSY75E

SECOND ALLIED COURSE II - OPERATIONS RESEARCH

Unit I

Linear Programming: Introduction – Mathematical Formulation of the Problem – Graphical Solution – General LPP- Canonical & Standard Forms of LPP – Simplex Method – Big M Method – Two Phase Simplex Method.

Unit II

Duality in linear programming – Primal & Dual Problems – Duability & Simplex Method – Dual Simplex Method. The transportation PROBLEM: Mathematical Formulation of the problem - Initial Basic Feasible Solution (Method, North-West Corner Rule & VAM) - Moving towards Optimality – unbalanced Transportation Problems.

Unit III

Inventory Control: Introduction – Various Costs involved in Inventory EOQ Models with shortage – EOQ Models with Shortage – Buffer Stock & Reorder Level – EOQ Problems with Price Breaks – Inventory problem with uncertain demand.

Unit IV

Replacement Problems: Introduction – Replacement of Equipments that Deteriorates Gradually – Replacement of equipment that fails suddenly. PERT-CPM: Introduction – Time cost optimization – Project planning – Resource allocation & scheduling.

Unit V

Queuing Theory: Introduction – Characteristics of Queuing System – Traffic intensity – Poisson Process & Exponential Distribution – Classification of Queues – Problem from Single Server Infinite & finite population Model.

Text Book

1. Natarajan.A.M, Balasubramani.P, Tamilarasi.A, Operations Research, Pearson education,2007, ISBN 81-317-0000-3
   [Unit-1 (Chapters – 1, 2) ; Unit-2 (Chapters – 3, 4) ; Unit-3 (Chapters –10); Unit-4 (Chapters – 9, 12); Unit-5 (Chapters –11)]

Reference Books

1. Pannerselvam, Operations research, Second edition, Prentice Hall of India, ISBN 978-81-203-2928-7.
2. Bronson Richard, Naadimuthu. G, Operations research, Schaum's outlines, Second edition, Tata McGrawHill, ISBN 0-07-058400-1, 2004
3. Hamdy A.Taha : Operation Research – An introduction, 5th edition, Prentice Hall of India/Pearson education, New Delhi – 1996.