SPR1307	RESOURCE MANAGEMENT TECHNIQUES	L	T	P	Credits	Total Marks
		2	1	0	3	100

COURSE OBJECTIVE

To introduce the various optimization techniques and their advancements and to make use of the above techniques while modeling and solving the engineering problems of different fields.

UNIT 1 INTRODUCTION AND LINEAR PROGRAMMING 9 Hrs.

Operations Research(OR)-Nature-Characteristics-Phases.-Role of OR in Decision making- Outline of OR Models Linear Programming – Formulation of L.P.problems –Solution by graphical method, simplex method, Two Phase Method, Big M methods, Dual Simplex method

UNIT 2 TRANSPORTATION AND ASSIGNMENT MODEL 9 Hrs.

Transportation problem – Initial Basic feasible solution- Northwest corner method, Least Cost method, Vogel's approximation method – Test for optimality-MODI method. Assignment problems- Hungarian assignment models-Travelling salesman problems

UNIT 3 RESOURCE SCHEDULING AND NETWORK ANALYSIS 9 Hrs.

Problem of Sequencing – Problem with N jobs and 2 machines N Jobs 3 machines N Jobs and m machines and 2 Jobs m machines (Graphical method). Project Management -Basic concepts–Network construction and scheduling Critical Path Method (CPM) & Program evaluation review technique (PERT) and resource leveling by network techniques, time – Cost trade off.

UNIT 4 INVENTORY CONTROL 9 Hrs.

Inventory Control – Various Types of inventory models – deterministic inventory models – Production model, Purchase model– with and without shortage- Economic Order Quantity (EOQ) – Buffer stock – Shortage quantity, Probabilistic inventory models – Quantity Discount and Price Breaks

UNIT 5 QUEUEING THEORY AND REPLACEMENT MODELS 9 Hrs.

Queuing theory – Poisson arrivals and exponential service times, Single channel models only, Replacement policy for items whose maintenance cost increases with time- Consideration of time value of money - Replacement policy- Individual, Group replacement of items that fail completely and suddenly.

Max. 45 Hours

TEXT / REFERENCE BOOKS

1. R.Panneerselvam,"operation research", 2nd Edn., Prentice Hall, 2001.
2. S.D Sharma,"operation research Theory,Methods and Application", 17th Edn., Kedar Nath Ram Nath Publication, 2010.
3. Nita H Shah, Ravi M Gor & Hardik Soni, "operation research", 4th Edn., PHI, 2010.
4 .Hamdy A.Taha," Opeartion Research", 8th Edn, PHI, 2008
5. Hiller & Liberman., Introduction to Operations Research, 5th Edition, Mc Graw Hill, 2001
6. Ravindran,Phillips &Solberg, "Operations Research: principles and practice", 2nd Edn., Wiley India Lts, 2007
7. Ronald L. Rardin," Optimization in Operations Research", Prentice Hall, 1998