SARDAR RAJA COLLEGE OF ENGINEERING, ALANGULAM

DEPARTMENT OF COMPUTER APPLICATIONS

Subject Name : RESOURCE MANAGEMENT TECHNIQUE

Subject Code : MC9242

Year/Branch : II MCA

Semester : IV

Prepared By,

D.SHERLIN

AP/MCA

SUBJECT DESCRIPTION AND OBJECTIVES

***AIM*:**

To extend student's mathematical maturity and ability to deal with abstraction and to introduce most of the basic terminologies used in computer science courses and application of ideas to solve practical problems. The probabilistic models are employed in countless applications in all areas of science and engineering. Queuing theory provides models for a number of situations that arise in real life. The course aims at providing necessary mathematical support and confidence to tackle real life problems

OBJECTIVES

At the end of the course, the students would

- Have knowledge of the concepts needed to test the logic of a program.
- Have gained knowledge which has application in expert system, in data base and a basic for the prolog language.
- Have an understanding in identifying patterns on many levels.
- Be aware of a class of functions which transform a finite set into another finite set which relates to input output functions in computer science.
- Have a well – founded knowledge of standard distributions which can describe real life phenomena.
- Understand and characterize phenomena which evolve with respect to time in a probabilistic manner. Be exposed to basic characteristic features of a queuing system and acquire skills in analyzing queuing models.

MC9242 RESOURCE MANAGEMENT TECHNIQUES L T P C 3 0 0 3

UNIT I LINEAR PROGRAMMING MODELS 9

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

UNIT II TRANSPORTATION AND ASSIGNMENT MODELS 9

Mathematical formulation of transportation problem- Methods for finding initial basic feasible solution – optimum solution - degeneracy – Mathematical formulation of Assignment models – Hungarian Algorithm – Variants of the Assignment problem

UNIT III INTEGER PROGRAMMING MODELS 9

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

UNIT IV SCHEDULING BY PERT AND CPM 9

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

UNIT V QUEUEING MODELS 9

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

TOTAL : 45 PERIODS

TEXT BOOK:

1. Taha H.A., "Operations Research : An Introduction " 7th Edition, Pearson Education, 2004.

REFERENCES:

1. A.M.Natarajan, P.Balasubramani, A.Tamilarasi, "Operations Research", Pearson Education, Asia, 2005.

2. Prem Kumar Gupta, D.S. Hira, "Operations Research", S.Chand & Company Ltd, New Delhi, 3rd Edition , 2003.

MICRO LESSON PLAN

Hours	LECTURE TOPICS	READING
UNIT I LINEAR PROGRAMMING MODELS		
1-2	Mathematical Formulation	T1
3 – 7	Graphical Solution of linear programming models **(AV CLASS)**	T1
8-10	Simplex method **(PPT)**	T1
11-12	Artificial variable Techniques , Variants of Simplex method	T1
UNIT II TRANSPORTATION AND ASSIGNMENT MODELS		
13 - 15	Mathematical formulation of transportation problem **(PPT)**	T1
16 - 17	Methods for finding initial basic feasible solution	T1
18 - 19	Optimum solution	T1
20	Degeneracy	T1
21 - 22	Mathematical formulation of Assignment models **(PPT)**	T1
23	Hungarian Algorithm **(PPT & PDF)**	T1
24	Variants of the Assignment problem	T1
UNIT III INTEGER PROGRAMMING MODELS		
25-28	Formulation – Gomory's IPP method	T1
29 – 32	Gomory's mixed integer method	T1
33 – 36	Branch and Bound Technique **(PPT)**	T1
UNIT IV SCHEDULING BY PERT AND CPM		
37	Network Construction	T1 & R2
38-40	Critical Path Method **(PPT)**	T1 & R2
41-44	Project Evaluation and Review Technique	T1 & R2
45-48	Resource Analysis in Network Scheduling	T1 & R2
UNIT V QUEUEING MODELS		
49 - 51	Characteristics of Queuing Models **(PPT)**	T1 & R2
52 – 55	Poisson Queues - (M / M / 1) : (FIFO / ∞ /∞), (M /M / 1) : (FIFO / N / ∞)	T1 & R2
56 – 60	(FIFO / N / ∞), (M / M / C) : (FIFO / ∞ / ∞), (M / M / C) : (FIFO / N / ∞) models.	T1 & R2