ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM VI SEMESTER STATISTICS TIME: 4HRS/WEEK ST 6201(3) OPTIMIZATION TECHNIQUES MAX.MARKS:100 SYLLABUS

Objectives:

To find the optimal solution of an optimization problem

It graphically displays interdependent relationships between groups' steps and tasks as they all impact a project.

The two analytic techniques for planning scheduling and controlling of projects Course:

UNIT-I:

Introduction and Definition of General Linear Programming Problem(LPP), formulation of LPP, Matrix form of LPP, Graphical Solution of LPP, Simplex Method – Slack variables.

UNIT-II:

Simplex Method – Artificial variable techniques - Big M-Method, Two Phase Method, Degeneracy problem, Method to resolve Degeneracy.Revised Simplex Method.

UNIT-III:

Duality, primal to dual and dual to primal, General rules of converting any primal to into its Dual, Statement of fundamental theorem of duality, Dual simplex method.

UNIT-IV:

Integer Programming Problem: Introduction and its applications, Branch and Bound (upto two branch problems only), Gromarey's Cutting plane method.

UNIT-V:

Network diagram representation, time estimates and critical path in network analysis – Forward pass computations, Backward pass computations, Determination of critical path (CPM), Project Evaluation and Review Technique

(PERT)-expected time, and variance and expected duration of the project with simple examples.

BOOKS FOR STUDY:

- 1. Operations research S.D. Sharma
- 2. Operations research Taha. H.A.

BOOKS FOR REFERENCE:

- 1. Operations research -- Wagner
- 2. Operations research Kanthi swaroop
- 3. Operations research V.K. Kapoor
- 4. Operations research Kanthi swaroop and other.
- 5. Linear Programming Hadley G

PRACTICAL

Objectives:

To find the linear programming problems by Big M method

To draw the network representation of CPM

To find the linear programming problems using dual simplex method.

Course

- 1. Formulation of graphical solutions of LPP (using different inequality type constraints).
- 2. Formulation of LPP by Simplex method.
- 3. Formulation of a LPP using BIG-M and Two-Phase Simplex method.
- 4. Formulation of LPP using Dual Simplex method.
- 5. Programming problems on branch and bound techniques.
- 6. Network diagrammatic representation on CPM.
- 7. Network problems on PERT technique.
- 8. MS-Excel methods for above serial numbers (2, 3, 4, 5, 6, 7,) (any one of above