ST.JOSEPH'S COLLEGEFORWOMEN (A),VISAKHAPATNAMVIII SEMESTERSTATISTICSTIME: 4 Hrs/WeekST 8201(3)OPERATIONS RESEARCH-IVMax. Marks:100SYLLABUSSYLLABUSSYLLABUS

Course Objectives:

CO1: To acquire knowledge of scope of Operations Research

CO2: Understand to develop the optimization techniques that will be useful in the personal and professional life

CO3: Can apply Game theory to analyze existing situations wherever there are limited resources, different decision options and different outcomes from different choices.

CO4: To find optimum solution and formulate LPP to solve problems using simplex

methods

CO5: To apply with inventories of various goods with and without shortages to solve real life problems and derive study state solutions of Poisson queues .

Learning Outcomes:

At the End of this Course Students will be able:

LO1: To Formulate the problem in operations research.

LO2: To Establish the relationship between the variables and constraints by constructing the model to analyze existing situations wherever there are limited resources, different decision options, different outcomes from different choices. LO3: To provide the idea of formulating mathematical model and their optimum solution in the contest of practical problems belonging to Government /Private sectors.

LO4: To Learn the tools like Linear Programming Problems, replacement and operational gamming.

LO5: To Familiar with the queuing and different design and develop inventory models

LO6: To Obtain a firm foundation in advanced OR techniques for the real life problems.

COURSE:

UNIT- I

Simulation – Types of Simulation: Analogue simulation, Computer simulation Random Variable: Random Number, Pseudo-random numbers, Monte-Carlo Simulation, Generation of Random numbers, and Simple exercises.

UNIT-II

Decision theory – Basic Terminology in Decision Theory, Steps in the decision making process, Decision-Making Environment: Decision-making under conditions of Certainty, Decision-making under Uncertainty: Maximin gain criterion or Minimax loss function, Maximax gain criterion or Minimin loss criterion, Laplace criterion, Decision-making under conditions of Risk: Expected Money Value criterion, Expected Opportunity Loss criterion, Expected value of Perfect Information and simple exercises

UNIT-III

Inventory Control 1 – Introduction, Reasons for maintenance Inventories, Types of Inventory, Inventory costs, Variables in the Inventory Problem, Other factors Involved in Inventory Analysis: Demand, Lead Time, Amount of Delivered, Order Cycle, Time Horizon, Recorder Level

UNIT-IV

Inventory Control 2 – Deterministic Inventory Model: EOQ Models without Shortages, EOQ Models with Shortages, Inventory Models with Probabilistic Demand, Re-order Level and Optimum Buffer Stock and simple exercises

UNIT-V

Goal Programming Problem (GPP): Introduction, Concept of GPP, Goal programming as an extension of LPP, single goal models, multiple goals models, multiple goals with priorities, formulation of Goal programming models, Graphical solution, extended simplex method applied to GPP.