SRI VENKATESWARA UNIVERSITY
B.A/B.Sc. DEGREE COURSEINSTATISTICS(WM)

SEMESTER SYSTEM WITH CBCS

SEMESTER V
W.E.F. 2022-2023

COURSE 7A: OPERATION RESEARCH - II

(Skill Enhancement Course(Elective),
05 CreditsMax.Marks: Theory :100 +
Practicals: 50

UNIT -I

Transportation problem - Introduction, Mathematical formulation of Transportation problem, Tabular representation, Definitions, Initial Basic feasible solution of Transportation problem- North-west corner rule, Lowest cost entry method, Vogel's approximation method. Method of finding optimal solution- Modi method(U-V method). Unbalanced transportation problem. Maximization Transportation problem

UNIT-II

Assignment problem - Introduction, Mathematical formulation of Assignment problem, Reduction theorem(statement only), Hungarian Method for solving Assignment problem, Unbalanced Assignment problem. Traveling salesman problem

UNIT-III

Sequencing problem: Introduction, assumptions of sequencing problem, Johnson's algorithm for n jobson two machines problem- problems with n-jobs on two machines, algorithm for n jobs on three machinesproblem- problems with n- jobs on three machines, algorithm for n jobs on k machines, problems with n-jobs on k-machines.

UNIT-IV

Network Scheduling -Basic components of a network - nodes and arcs – events and activities - Rules of Network construction- Time calculation in networks - Critical path method(CPM) and PERT.

UNIT –V

Game Theory - Two- person zero-sum game. Pure and Mixed strategies. Maxmin and Min max Principles - Saddle point and its existence - Games without saddle point- Mixed strategies- Solutionof 2x2 rectangular games -Graphical method for solving 2xn and mx2 games - Dominance property–Solution of game by Dominance method

Practical/Lab to be performed on a computer using OR/Statistical packages

1. IBFS of Transportation problem by using North- West corner rule
2. IBFS of Transportation problem by using Matrixminimum method
3. IBFS of Transportation problem by using VAM
4. Solution of Assignment problem using Hungarian method
5. Traveling salesman problem
6. Solution of sequencing problem—processing of n jobs through two machines
7. Solution of sequencing problem - processing of n jobs through three machines
8. To perform Project scheduling of a given project (Deterministic case-CPM).
9. To perform Project scheduling of a given project (Probabilistic case-PERT).
10. Solution of m x n games by dominance rule