

SARDAR PATEL UNIVERSITY

Programme: BCA

Semester: IV

Syllabus with effect from: June 2019

Paper Code : US04ABCA21	Total Credit: 2
Title of Paper: Fundamentals of Operations Research	

Contact Hrs per week : 4

Exam Duration: 2 hrs

❖ Practicals Based on Topics

- Linear Programming Problem: formulation, feasible region, Basic and Unbounded solution, Standard form.
- Graphical solution (Maximization & Minimization), Simplex method (Maximization), Big M method (Maximization)
- Mathematical model of Transportation Problem, Initial Basic Feasible Solution by North-West corner rule, Least-cost method and Vogel's Approximation Method (VAM).
- Optimum Solution by MODI method (of type Balance, Minimization, Non-degeneracy problems).
- Travelling Salesman Problem and Assignment Problem (AP), Mathematical model of AP, Solution of AP by Hungarian method (Balance & minimization).
- Dynamic programming, Deterministic & Probabilistic dynamic programming (types only), shortest route problem.
- Sequencing problem, N-jobs through 2 machines
- Applications of PERT & CPM, Rules for Network construction, Critical path calculations, Total & Free float.

Basic Text & Reference Books:-

1. Sharma S.D.: Operations Research. KedarNath Ram Nath & Co. Meerut, 1988-89. **(fifteenth edition)**
2. Operation Research (For managerial decision making) 5th revised edition by V. K. Kapoor, Sultan Chand & sons.
3. J.K.sharma: Operation Research.
4. Gillett B. E.: Introduction to Operations Research - a computer oriented algorithmic approach, McGraw-Hill, 1976.