

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
MBA II Semester

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(17E00205) OPERATIONS RESEARCH

The objective of the course is to provide the basic tools of Operations Research in solving the management problems through modeling and using mathematical approach.

1. **Introduction to OR: Meaning**, Nature, Scope & Significance of OR - Typical applications of Operations Research.

The Linear Programming Problem – Introduction, Formulation of Linear Programming problem, Limitations of L.P, Graphical solution to L.P.P, Simplex Method, Artificial Variable techniques, Two Phase Method, Variants of the Simplex Method.

2. **Transportation Problem:** Introduction, Transportation Model, Finding initial basic feasible solutions, Moving towards optimality, Unbalanced Transportation problems, Transportation problems with maximization, Degeneracy.

Assignment Problem – Introduction, Mathematical formulation of the problem, Solution of an Assignment problem, Hungarian Algorithm, Multiple Solution, Unbalanced Assignment problems, Maximization in Assignment Model.

3. **Sequencing** – Job sequencing, Johnsons Algorithm for n Jobs and Two machines, n Jobs and Three Machines, n jobs through m machines, Two jobs and m Machines Problems.

4. **Game Theory:** Concepts, Definitions and Terminology, Two Person Zero Sum Games, Pure Strategy Games (with Saddle Point), Principal of Dominance, Mixed Strategy Games (Game without Saddle Point), Significance of Game Theory in Managerial Application.

5. **Project Management:** Rules for drawing the network diagram, Application of CPM and PERT techniques in Project Planning and Control.

Textbooks:

- Operations Research / S.D.Sharma-Kedarnath

References:-

- Introduction to O.R/Hiller & Libermann (TMH).
- Operations Research /A.M.Natarajan,P.Balasubramani,A. Tamilarasi/Pearson Education.
- Operations Research: Methods & Problems / Maurice Saseini, Arthur Yaspan & Lawrence Friedman. Pearson
- Quantitative Analysis For Management/ Barry Render, Ralph M. Stair, Jr and Michael E. Hanna/
- Operations Research / R.Pannerselvam, PHI Publications.
- Operations Research / Wagner/ PHI Publications.