



STANLEY

COLLEGE OF ENGINEERING & TECHNOLOGY FOR WOMEN
(Approved by AICTE , New Delhi | Affiliated to Osmania University ,Hyderabad)
Address : Chapel Road, Abids ,Hyderabad

ME 404

OPERATIONS RESEARCH

Unit-I

Introduction : Definition and Scope of Operations Research.

Linear Programming: Introduction, Formulation of linear programming problems, graphical method of solving LP problem, simplex method, maximization and minimization, Degeneracy in LPP, Unbounded and, Infeasible solutions.

Unit-II

Duality : Definition, Relationship between primal and dual solutions, Economic Interpretation, Post optimal of sensitivity analysis, Dual Simplex Method.

Unit-III

Transportation Models : Finding an initial feasible solution - North West corner method, Least cost method, Vogel's Approximation method, Finding the optimal solution, optimal solution by stepping stone and MODI methods, Special cases in Transportation problems - Unbalanced Transportation problem.

Assignment Problems : Hungarian method of Assignment problem, Maximization in Assignment problem, unbalanced problem, problems with restrictions, travelling salesman problems.

Unit-IV

Replacement Models : Introduction, replacement of items that deteriorate ignoring change in money value, replacement of items that deteriorate considering change in money value with time, replacement of items that fail suddenly - Individual replacement policy, Group replacement policy.

Game Theory: Introduction, 2 person zero sum games, Maximin - Minimax principle, Principle of Dominance, Solution for mixed strategy problems, Graphical method for $2 \times n$ and $m \times 2$ games.

Unit-V

Sequencing Models : Introduction, General assumptions, processing n jobs through 2 machines, processing ' n ' jobs through m machines, Processing 2 jobs through m machines.

Queuing Theory : Introduction, single channel - poisson arrivals - exponential service times with infinite population & finite population, Multi channel - poisson arrivals - Exponential service times with infinite population.

Introduction to optimization Techniques: Single objective & Multi objective optimization Techniques like G.A, NSGA, P.Q.O. & MPSO Techniques.

Suggested Reading :

1. Hamdy, A. Taha, "*Operations Research-An Introduction*", Sixth Edition, Prentice Hall of India Pvt. Ltd., 1997.
2. S.D. Sharma, "*Operations Research* ", Kedarnath, Ramnath& Co., Meerut, 2009.
3. Hrvey M. Wagner, "*Principles of Operations Research* ", Second Edition, Prentice Hall of India Ltd., 1980.
4. V.K. Kapoor, "*Operations Research* ", S. Chand Publishers, New Delhi, 2004.
5. R. PaneerSelvam, "*Operations Research*", Second Edition, PHI Learning Pvt. Ltd., New Delhi, 2008.
6. Prof. ShankerNarasimha, "*Data Reconciliation*".