

# VEER NARMAD SOUTH GUJARAT UNIVERSITY SURAT

T.Y. B.Sc

Statistics

Principal

Paper –CAN COURSE

(OPERATION RESERCH )

Scope of O.R. Advantages of O.R. Different Models in O.R. General discussion of Linear Programming problem formulation, Graphical solution of LPP, Basic, Non Basic, Degenerate, Non – Degenerate and Basic feasible solution of LPP, convex & Concave sets, Properties of convex sets, convex concave functions, slack & Surplus variables, LPP in the standard matrix form, properties of solution of LPP, Generating extreme points solutions.

Theory and Practical of simplex method of solution of LPP, computation procedure, Big – M Method, Artificial basic Technique, Duality of LP the Non – symmetric & symmetric dual problems, Relation between primal & dual problems, Economical interpretation of duality, transportation problems, Methods for finding initial basic feasible solution, Optimal Solution of T.P. problem by Modi – method, Unbalanced TP, Assignment problems, the Hanganian Methods, Balance and Unbalanced assignment problems.

**Game Theory :** Competitive games, Two – person Zero – sum game, Minimax & Maximin principles, Fundamental theorem of game theory, Saddle points and the value of the game ( based on pure strategies ) Mixed strategies , Solution of games with / without saddle point, Dominance rule, solution of  $m \times 2$  and  $2 \times n$  games using graphical method, Algebraic methods of solving games.

**Inventory Models :** Basic definition of parametric association with inventory problems, various costs associated with inventory problems, Inventory models with infinite rate of replenishment, Finite rate of replenishment with & without shortages.

**Queuing Theory :** Classification of queues, Poisson process and exponential distribution , Transient and steady states, Poisson queues with single service channel , Finite and infinite capacity and its characteristics .

**The course is covered from the following reference books:**

1. J.K.Sharma : O.R/ Theory and applications Mac Millan India Ltd. 1998.
2. Kanti Swaroop : P.K. Gupta and Man Mohan : Operation Research, S.Chand & Sions, New Delhi 1995.

3. G. Hadly :Linear Programming, Narosa Publishing House, New Delhi 1995.
4. G. Paria : Linear Programming Transportation, Assignment, Game.Book & Allied Pvt. Ltd., Kolkota-9.
5. P. M. Karak : linear Programming , New Central Book Agency P. Ltd. KOLKOTA – 9.
6. K. V. Mittal & L. Mohan : Optimization methods in O. R. & System analysis. New Age Internatinal Publications,
7. Handy A. Taha : O. R. An Introduction, PHI Pvt. Ltd-1997
8. Goel & Mittal : O. R., Pragti Prakashan, Merrut.
9. Hilter & Leiberman : O. R., S. Chand & Sons. New Delhi.