

# GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Semester: III

Electronics and Communication Engineering

Subject Name: **Optimization Techniques (Major Elective - IV)**

| Sr. No | Course content   |
|--------|--|
| 1.     | Motivation. Mathematical review, matrix factorization, sets and sequences, convex sets and functions.  |
| 2.     | Linear programming and simplex methods, Weierstrass' Theorem, Karush Kuhn Tucker optimality conditions, algorithms, convergence.   |
| 3.     | Unconstrained optimization, Line search methods, method of multidimensional search, method of multi dimensional search, steepest descent methods, Newton's method, trust region methods, conjugate gradient methods, quasi-Newton's methods. |
| 4.     | Constrained optimization, penalty and barrier function methods, augmented Lagrangian methods, Polynomial time algorithm for linear programming.  |
| 5.     | Successive linear programming, successive quadratic programming.   |

## Reference Books:

M.S.Bazaraa, H.D.Sherali and C. Shetty, Nonlinear Programming theory and Algorithms, John Wiley and Sons, New York.