PEPE103 Optimization Techniques

Module-I   **12hrs**

Optimization Fundamentals:
Definition , classification of optimization problems, Unconstrained and constrained optimization, optimality conditions.
Linear Programming:
Simplex Method, Duality, Sensitivity methods.

Module-II   **14hrs**

Nonlinear Programming:
Powel's method, steepest descent method, conjugate gradient method, Newton's Method GRG method, Sequential quadratic programming, Penalty function method, Augmented Lagrange multiplier method.

Dynamic Programming and Integer Programming
Interior point methods
Karmakar's algorithm , Dual affine, Primal affine , Barrie algorithm.

Module-III   **10 hrs**

Simulated annealing , Evolutionary Programming , Genetic algorithm and Genetic Engineering.
Finite Element Based Optimization.

Reference Books
1. Ashok D.belegundu and Chrandrapatla T. R " Optimization Concept and Application in Engineering " Prentice Hall, 1999.
2. Rao S.S " Engineering Optimization"
3. Gill , Murray and Wright ," Practical Optimization"
4. James A. Memoh." Electic Power System Application of optimization."
5. song Y. , "Modern Optimization Techniques in power System"