OPTIMUM DESIGN OF MECHANICAL SYSTEMS

Basic concepts: Unconstrained and constrained problems. The Kuln-Tucker conditions; Function of one variable, Polynomial approximation, Golden section method. Finding the bounds on the solution, a general strategy for minimizing functions of one variable; Unconstrained functions of n variables: Zero order, first-order and second-order methods, convergence criteria; constrained functions of n variables: linear programming, Sequential unconstrained minimization techniques, Direct Methods; Approximation techniques; Duality; General design application.

Text Books

1. Optimization for Engineering Design - K. Deb, PHI, 2005
2. Engineering Optimization - S.S.Rao, New Age International Pvt. Ltd. 1998.

Reference Books

Introduction to Optimization - J.C. Panth, Jain Brothers Publication, New Delhi, 1983