Course Description: The purpose of this course is to present modern concepts of optimal design of systems. Basic ideas from optimization theory are developed with simple design examples. Analytical and numerical methods are developed and their applications discussed. Use of numerical simulation methods in the design process is described. Prerequisite: 53(58):113


Other Optimization Books


**Topical Outline**

1. Introduction; notation; Design process
2. Optimal design problem formulation
3. Unconstrained optimal design theory; applications
4. Constrained optimal design theory; applications
5. Numerical methods; Linear and quadratic programming
6. Numerical methods; unconstrained problems
7. Numerical methods; constrained problems
8. Optimal design with numerical simulation method; design sensitivity analysis
9. *Applications*; Projects related to student’s area of expertise