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Nota di contenuto	1 Problem Statement -- 1.1 Introduction -- 1.2 Analysis Models -- 1.3 General Formulation -- 1.4 Typical Problem Formulations -- Exercises -- 2 Optimization Methods -- 2.1 Optimization Concepts -- 2.2 Unconstrained Minimization -- 2.3 Constrained Minimization: Linear Programming -- 2.4 Constrained Minimization: Nonlinear Programming -- Exercises -- 3 Approximation Concepts -- 3.1 General Approximations -- 3.2 Approximate Behavior Models -- Exercises -- 4 Design Procedures -- 4.1 Linear Programming Formulations -- 4.2 Feasible-Design Procedures -- 4.3 Optimality Criteria Procedures -- 4.4 Multilevel Optimal Design -- 4.5 Optimal Design and Structural Control -- 4.6 Geometrical Optimization -- 4.7 Topological Optimization -- 4.8 Interactive Layout Optimization -- Exercises -- References.

This book was developed while teaching a graduate course at several universities in the United States, Europe and Israel, during the last two decades. The purpose of the book is to introduce the fundamentals and applications of optimum structural design. Much work has been done in this area recently and many studies have been published. The book is an attempt to collect together selected topics of this literature and to present them in a unified approach. It meets the need for an introductory text covering the basic concepts of modern structural optimization. A previous book by the author on this subject ("Optimum Structural Design", published by McGraw-Hill New York in 1981 and by Maruzen Tokyo in 1983), has been used extensively as a text in many universities throughout the world. The present book reflects the rapid progress and recent developments in this area. A major difficulty in studying structural optimization is that integration of concepts used in several areas, such as structural analysis, numerical optimization and engineering design, is necessary in order to solve a specific problem. To facilitate the study of these topics, the book discusses in detail alternative problem formulations, the fundamentals of different optimization methods and various considerations related to structural design. The advantages and the limitations of the presented approaches are illustrated by numerous examples.
