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Nota di contenuto	Scaling Methods. Optimality of Michell Structures and membrane shells -- One-Dimensional Variational Methods. Optimization of twisted spherical shell -- Methods of Domain Variations for Shape Optimization -- Methods of Local Variations. Topological derivatives and Bubble Methods -- Methods of Tensor Transformations for Anisotropic Medium -- Methods of Differential Geometry. Optimal distributions of the residual stresses -- Integral Equation Methods. Optimization of stiffeners and needle-shaped inclusions -- Isoperimetric Inequalities. Structural optimization problems of stability.
Sommario/riassunto	This book provides a comprehensive overview of analytical methods for solving optimization problems, covering principles and mathematical techniques alongside numerical solution routines, including MAPLE and MAXIMA optimization routines. Each method is explained with practical applications and ANSYS APDL scripts for select problems. Chapters delve into topics such as scaling methods, torsion compliance, shape variation, topological optimization, anisotropic material properties, and differential geometry. Specific optimization problems, including stress minimization and mass reduction under constraints, are addressed. The book also explores isoperimetric inequalities and optimal material selection principles. Appendices offer insights into tensors, differential

geometry, integral equations, and computer algebra codes. Overall, it's a comprehensive guide for engineers and researchers in structural optimization.