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Nota di contenuto	ANALYSIS OFSTRUCTURES; Contents; About the Authors; Preface; 1 Forces and Moments; 1.1 Introduction; 1.2 Units; 1.3 Forces in Mechanics of Materials; 1.4 Concentrated Forces; 1.5 Moment of a Concentrated Force; 1.6 Distributed Forces-Force and Moment Resultants; 1.7 Internal Forces and Stresses-Stress Resultants; 1.8 Restraint Forces and Restraint Force Resultants; 1.9 Summary and Conclusions; 2 Static Equilibrium; 2.1 Introduction; 2.2 Free Body Diagrams; 2.3 Equilibrium-Concentrated Forces; 2.3.1 Two Force Members and Pin Jointed Trusses; 2.3.2 Slender Rigid Bars; 2.3.3 Pulleys and Cables 2.3.4 Springs2.4 Equilibrium-Distributed Forces; 2.5 Equilibrium in Three Dimensions; 2.6 Equilibrium-Internal Forces and Stresses; 2.6.1 Equilibrium of Internal Forces in Three Dimensions; 2.6.2 Equilibrium in Two Dimensions-Plane Stress; 2.6.3 Equilibrium in One Dimension-Uniaxial Stress; 2.7 Summary and Conclusions; 3 Displacement, Strain, and Material Properties; 3.1 Introduction; 3.2 Displacement and Strain; 3.2.1 Displacement; 3.2.2 Strain; 3.3 Compatibility; 3.4 Linear Material Properties; 3.4.1 Hooke's Law in One Dimension-Tension; 3.4.2 Poisson's Ratio 3.4.3 Hooke's Law in One Dimension-Shear in Isotropic Materials3.4.4 Hooke's Law in Two Dimensions for Isotropic Materials; 3.4.5 Generalized Hooke's Law for Isotropic Materials; 3.5 Some Simple Solutions for Stress, Strain, and Displacement; 3.6 Thermal Strain; 3.7 Engineering Materials; 3.8 Fiber Reinforced Composite Laminates; 3.8.1 Hooke's Law in Two Dimensions for a FRP Lamina; 3.8.2 Properties of Unidirectional Lamina; 3.9 Plan for the Following Chapters; 3.10 Summary and Conclusions; 4 Classical Analysis of the Axially Loaded Slender Bar; 4.1 Introduction 4.2 Solutions from the Theory of Elasticity4.3 Derivation and Solution of the Governing Equations; 4.4 The Statically Determinate Case; 4.5 The Statically Indeterminate Case; 4.6 Variable Cross Sections; 4.7 Thermal Stress and Strain in an Axially Loaded Bar; 4.8 Shearing Stress in an Axially Loaded Bar; 4.9 Design of Axially Loaded Bars; 4.10 Analysis and Design of Pin Jointed Trusses; 4.11 Work and Energy-Castigliano's Second Theorem; 4.12 Summary and Conclusions; 5 A General Method for the Axially Loaded Slender Bar; 5.1 Introduction 5.2 Nodes, Elements, Shape Functions, and the Element Stiffness Matrix5.3 The Assembled Global Equations and Their Solution; 5.4 A General Method-Distributed Applied Loads; 5.5 Variable Cross Sections; 5.6 Analysis and Design of Pin-jointed Trusses; 5.7 Summary and Conclusions; 6 Torsion; 6.1 Introduction; 6.2 Torsional Displacement, Strain, and Stress; 6.3 Derivation and Solution of the Governing Equations; 6.4 Solutions from the Theory of Elasticity; 6.5 Torsional Stress in Thin Walled Cross Sections; 6.6 Work and Energy-Torsional Stiffness in a Thin Walled Tube 6.7 Torsional Stress and Stiffness in Multicell Sections
Sommario/riassunto	Analysis of Structures offers an original way of introducing engineering students to the subject of stress and deformation analysis of solid objects, and helps them become more familiar with how numerical methods such as the finite element method are used in industry. Eisley and Waas secure for the reader a thorough understanding of the basic numerical skills and insight into interpreting the results these methods can generate. Throughout the text, they include analytical development alongside the computational equivalent, providing the student with the

understanding that is necessa