

| | |
|-------------------------|---|
| 1. Record Nr. | UNINA9910143570803321 |
| Autore | Pilkey Walter D |
| Titolo | Analysis and design of elastic beams [[electronic resource]] : computational methods / / Walter D. Pilkey |
| Pubbl/distr/stampa | New York, : Wiley, c2002 |
| ISBN | 1-280-36292-8 9786610362929 0-470-35572-7 0-470-17266-5 0-471-42321-1 |
| Descrizione fisica | 1 online resource (479 p.) |
| Disciplina | 624.17723 |
| Soggetti | Girders Thin-walled structures Electronic books. |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | ANALYSIS AND DESIGN OF ELASTIC BEAMS; CONTENTS; PREFACE; 1 BEAMS IN BENDING; 1.1 Review of Linear Elasticity; 1.1.1 Kinematical Strain-Displacement Equations; 1.1.2 Material Law; 1.1.3 Equations of Equilibrium; 1.1.4 Surface Forces and Boundary Conditions; 1.1.5 Other Forms of the Governing Differential Equations; 1.2 Bending Stresses in a Beam in Pure Bending; 1.3 Principal Bending Axes; 1.4 Axial Loads; 1.5 Elasticity Solution for Pure Bending; References; 2 BEAM ELEMENTS; 2.1 Fundamental Engineering Theory Equations for a Straight Beam; 2.1.1 Geometry of Deformation 2.1.2 Force-Deformation Relations 2.1.3 Equations of Equilibrium; 2.1.4 Boundary Conditions; 2.1.5 Displacement Form of the Governing Differential Equations; 2.1.6 Mixed Form of the Governing Differential Equations; 2.1.7 Principle of Virtual Work: Integral Form of the Governing Equations; 2.2 Response of Beam Elements; 2.2.1 First-Order Form of the Governing Equations; 2.2.2 Sign Conventions for Beams; 2.2.3 Definition of Stiffness Matrices; 2.2.4 Determination of Stiffness Matrices; 2.2.5 Development of an Element by Mapping from a |

Reference Element; 2.3 Mass Matrices for Dynamic Problems
2.3.1 Consistent Mass Matrices 2.3.2 Lumped Mass Matrices; 2.3.3
Exact Mass and Dynamic Stiffness Matrices; 2.4 Geometric Stiffness
Matrices for Beams with Axial Loading; 2.5 Thermoelastic Analysis;
References; 3 BEAM SYSTEMS; 3.1 Structural Systems; 3.1.1 Coordinate
System and Degrees of Freedom; 3.1.2 Transformation of Forces and
Displacements; 3.2 Displacement Method of Analysis; 3.2.1 Direct
Stiffness Method; 3.2.2 Characteristics of the Displacement Method; 3.3
Transfer Matrix Method of Analysis; 3.4 Dynamic Responses; 3.4.1 Free
Vibration Analysis; 3.4.2 Forced Response
3.5 Stability Analysis 3.6 Analyses Using Exact Stiffness Matrices;
References; 4 FINITE ELEMENTS FOR CROSS-SECTIONAL ANALYSIS; 4.1
Shape Functions; 4.2 Transformation of Derivatives and Integrals; 4.3
Integrals; 4.4 Cross-Sectional Properties; 4.5 Modulus-Weighted
Properties; References; 5 SAINT-VENANT TORSION; 5.1 Fundamentals
of Saint-Venant Torsion; 5.1.1 Force Formulation; 5.1.2 Membrane
Analogy; 5.2 Classical Formulas for Thin-Walled Cross Sections; 5.2.1
Open Sections; 5.2.2 Closed Sections, Hollow Shafts; 5.3 Composite
Cross Sections; 5.4 Stiffness Matrices
5.4.1 Principle of Virtual Work 5.4.2 Weighted Residual Methods; 5.4.3
Isoparametric Elements; 5.5 Assembly of System Matrices; 5.6
Calculation of the Torsional Constant and Stresses; 5.7 Alternative
Computational Methods; 5.7.1 Boundary Integral Equations; 5.7.2
Boundary Element Method; 5.7.3 Direct Integration of the Integral
Equations; References; 6 BEAMS UNDER TRANSVERSE SHEAR LOADS; 6.1
Transverse Shear Stresses in a Prismatic Beam; 6.1.1 Approximate
Shear Stress Formulas Based on Engineering Beam Theory; 6.1.2 Theory
of Elasticity Solution; 6.1.3 Composite Cross Section
6.1.4 Finite Element Solution Formulation

Sommario/riassunto

State-of-the-art coverage of modern computational methods for the analysis and design of beams Analysis and Design of Elastic Beams presents computer models and applications related to thin-walled beams such as those used in mechanical and aerospace designs, where thin, lightweight structures with high strength are needed. This book will enable readers to compute the cross-sectional properties of individual beams with arbitrary cross-sectional shapes, to apply a general-purpose computer analysis of a complete structure to determine the forces and moments in the individual members, and to us

| | |
|-------------------------|--|
| 2. Record Nr. | UNINA9910700401103321 |
| Titolo | 2010 annual report [[electronic resource]] : new developments in human rights and the rule of law in China : roundtable before the Congressional-Executive Commission on China, One Hundred Eleventh Congress, second session, October 20, 2010 |
| Pubbl/distr/stampa | Washington : , : U.S. G.P.O., , 2011 |
| Edizione | [[Corr. print.]] |
| Descrizione fisica | 1 online resource (ii, 17 pages) |
| Soggetti | Human rights - China Rule of law - China Political prisoners - China Internet - Censorship - China Freedom of information - China Freedom of expression - China Freedom of religion - China |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Title from PDF title screen (viewed on Apr. 27, 2011). Star print. Paper version available for sale by the Supt. of Docs., U.S. G.P.O. |