1. Record Nr. UNINA9910437887103321

Autore	Krenk Steen
Titolo	Statics and Mechanics of Structures / / by Steen Krenk, Jan Høgsberg
Pubbl/distr/stampa	Dordrecht : , : Springer Netherlands : , : Imprint : Springer, , 2013
ISBN	94-007-6113-9
Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (XI, 506 p. 680 illus., 663 illus. in color.)
Disciplina	624.171
Soggetti	Mechanics Mechanics, Applied Solid Mechanics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di contenuto	Preface -- 1 Equilibrium and Reactions -- 2 Truss Structures -- 3 Statics of Beams and Frames -- 4 Deformation of Beams and Frames -- 5 Column Stability -- 6 The Force Method -- 7 Deformation and Element Methods for Frames -- 8 Stresses and Strains -- 9 Material Behavior -- 10 General Bending of Beams -- 11 Flexure and Torsion of Beams -- References -- Index.
Sommario/riassunto	The statics and mechanics of structures form a core aspect of civil engineering. This book provides an introduction to the subject, starting from classic hand-calculation types of analysis and gradually advancing to a systematic form suitable for computer implementation. It starts with statically determinate structures in the form of trusses, beams and frames. Instability is discussed in the form of the column problem - both the ideal column and the imperfect column used in actual column design. The theory of statically indeterminate structures is then introduced, and the force and deformation methods are explained and illustrated. An important aspect of the book’s approach is the systematic development of the theory in a form suitable for computer implementation using finite elements. This development is supported by two small computer programs, MiniTruss and MiniFrame, which permit static analysis of trusses and frames, as well as linearized stability analysis. The book’s final section presents related strength of materials subjects in greater detail; these include stress and strain,

		failure criteria, and normal and shear stresses in general beam flexure and in beam torsion. The book is well-suited as a textbook for a two-semester introductory course on structures. .

2.	Record Nr.	UNINA9910978263503321
	Autore	He Zeng
	Titolo	Solved Problems in Nonlinear Oscillations : A sourcebook for scientists and engineers / / by Zeng He, Wen Jiang, Lin Wang
	Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2025
	ISBN	9789819761135 9819761131
	Edizione	[1st ed. 2025.]
	Descrizione fisica	1 online resource (1045 pages)
	Altri autori (Persone)	JiangWen WangLin
	Disciplina	620.3
	Soggetti	Multibody systems Vibration Mechanics, Applied System theory Control theory Dynamics Continuum mechanics Multibody Systems and Mechanical Vibrations Systems Theory, Control Dynamical Systems Continuum Mechanics
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di contenuto	Problem Lists -- Conservative Single-Degree-of-Freedom Systems -- Nonconservative Single-Degree-of-Freedom Systems -- Forced Oscillations of Systems Having a Single Degree of Freedom -- Parametrically Excited Systems -- Systems Having Finite Degrees of Freedom -- Continuous Systems -- Traveling Waves.

Sommario/riassunto

This is an open access book. This textbook contains about 200 fully solved problems in analytical and numerical methods for nonlinear osccillations. These comprise all the end-of-chapter problems in Ali H. Nayfeh and Dean T. Mook's famous textbook Nonliear Oscillations. Mathematical software are adopted to make those solutions more accessible from a graphical point of view. This book can be adopted as a supplement to course work study for graduates or senior undergraduates. Since many exercise problems are adapted from scientific research papers, this book also has a good reference value for scientists and engineers who work in nonlinear vibration.