1. Record Nr. UNINA9910831168503321 Autore Rees D. W. A (David W. A.), <1947-> Titolo Mechanics of optimal structural design [[electronic resource]]: minimum weight structures / / David W.A. Rees Chichester, West Sussex, U.K.; Hoboken, J. Wiley, 2009 Pubbl/distr/stampa **ISBN** 1-282-45662-8 9786612456626 0-470-74978-4 0-470-74781-1 Descrizione fisica 1 online resource (584 p.) Disciplina 624.1771 693 Soggetti Lightweight construction Structural optimization Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Includes bibliographical references and index. Nota di bibliografia Nota di contenuto Mechanics of Optimal Structural Design; Contents; Preface; Glossary of Terms: Key Symbols: Chapter 1 Compression of Slender Struts: 1.1 Introduction; 1.2 Failure Criteria; 1.3 Solid Cross-Sections; 1.4 Thin-Walled, Tubular Sections; 1.5 Thin-Walled, Open Sections; 1.6 Summary of Results; References; Exercises; Chapter 2 Compression of Wide Struts; 2.1 Introduction; 2.2 Failure Criteria; 2.3 Cellular Sections; 2.4 Open Sections: 2.5 Corrugated Sandwich Panel; 2.6 Summary of Results; References; Exercise; Chapter 3 Bending of Slender Beams; 3.1 Introduction: 3.2 Solid Cross-Sections 3.3 Thin-Walled, Tubular Sections3.4 Open Sections; 3.5 Summary of Results; References; Exercises; Chapter 4 Torsion of Bars and Tubes; 4.1 Introduction; 4.2 Solid Cross-Sections; 4.3 Thin-Walled, Open Sections; 4.4 Thin-Walled, Closed Tubes; 4.5 Multi-Cell Tubes; References; Exercises; Chapter 5 Shear of Solid Bars, Tubes and Thin Sections; 5.1 Introduction; 5.2 Bars of Solid Section; 5.3 Thin-Walled Open Sections; 5.4 Thin-Walled, Closed Tubes; 5.5 Concluding

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Sommario/riassunto

In a global climate where engineers are increasingly under pressure to make the most of limited resources, there are huge potential financial and environmental benefits to be gained by designing for minimum weight. With Mechanics of Optimal Structural Design, David Rees brings the original approach of weight optimization to the existing structural design literature, providing a methodology for attaining minimum weight of a range of structures under their working loads. He addresses the current gap in education between formal structural design teaching at undergraduate level and the prac