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| 1. Record Nr. | UNINA9910811083803321 |
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| Titolo | Yield design / / Jean Salencon |
| Pubbl/distr/stampa | Hoboken, N.J., : ISTE Ltd/John Wiley and Sons Inc, 2013 |
| ISBN | 1-118-64900-1 1-118-64898-6 1-118-64899-4 |
| Edizione | [1st ed.] |
| Descrizione fisica | 1 online resource (258 p.) |
| Collana | Mechanical engineering and solid mechanics series |
| Disciplina | 624.176 |
| Soggetti | Plastic analysis (Engineering) |
| 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 | <p>CONTENTS; Preface; Chapter 1. Origins and Topicality of a Concept; 1.1 Historical milestones; 1.2.Topicality of the yield design approach; 1.3. Bibliography; Chapter 2. An Introductory Example of the Yield Design Approach; 2.1. Setting the problem; 2.2. Potential stability of the structure; 2.3. To what extent potential stability is a relevant concept?; 2.4.Bibliography; Chapter 3. The Continuum Mechanics Framework; 3.1. Modeling the continuum; 3.2.Dynamics; 3.3 The theory of virtual work; 3.4 Statically and kinematically admissible fields; 3.5. Bibliography</p> <p>Chapter 4. Primal Approach of the Theory of Yield Design4.1. Settlement of the problem; 4.2 Potentially safe loads; 4.3.Comments; 4.4 Some usual isotropic strength criteria; 4.5.Bibliography; Chapter 5. Dual Approach of the Theory of Yield Design; 5.1. A static exterior approach; 5.2 A kinematic necessary condition; 5.3. The functions; 5.4. functions for usual isotropic strength criteria; 5.5.Bibliography; Chapter 6. Kinematic Exterior Approach; 6.1. Equation of the kinematic exterior approach; 6.2 Relevant virtual velocity fields; 6.3 One domain, two approaches; 6.4.Bibliography</p> <p>Chapter 7. Ultimate Limit State Design from the Theory ofYield Design7.1. Basic principles of ultimate limit state design; 7.2 Revisiting the yield design theory in the context of ULSD; 7.3 The yield design theory applied to ULSD; 7.4.Conclusion; 7.5.Bibliography; Chapter 8. Optimality and Probability Approaches ofYield Design; 8.1. Optimal</p> |

dimensioning and probabilistic approach; 8.2. Domain of potential stability; 8.3 Optimal dimensioning; 8.4. Probabilistic approach of yield design; 8.5. Bibliography; Chapter 9. Yield Design of Structures; 9.1. The curvilinear one-dimensional continuum
9.2 Implementation of the yield design theory
9.3 Typical strength criteria; 9.4 Final comments; 9.5 Bibliography; Chapter 10. Yield Design of Plates: the Model; 10.1. Modeling plates as two-dimensional continua; 10.2. Dynamics; 10.3 Theorem/principle of virtual work; 10.4 Plate model derived from the three-dimensional continuum; 10.5. Bibliography; Chapter 11. Yield Design of Plates Subjected to Pure Bending; 11.1. The yield design problem; 11.2 Implementation of the yield design theory; 11.3. Strength criteria and functions; 11.4. Final comments; 11.5. Bibliography; Index

Sommario/riassunto

Since the middle of the 20th Century yield design approaches have been identified with the lower and upper bound theorem of limit analysis theory - a theory associated with perfect plasticity. This theory is very restrictive regarding the applicability of yield design approaches, which have been used for centuries for the stability of civil engineering structures. This book presents a theory of yield design within the original "equilibrium/resistance" framework rather than referring to the theories of plasticity or limit analysis; expressing the compatibility between the equilibrium of
