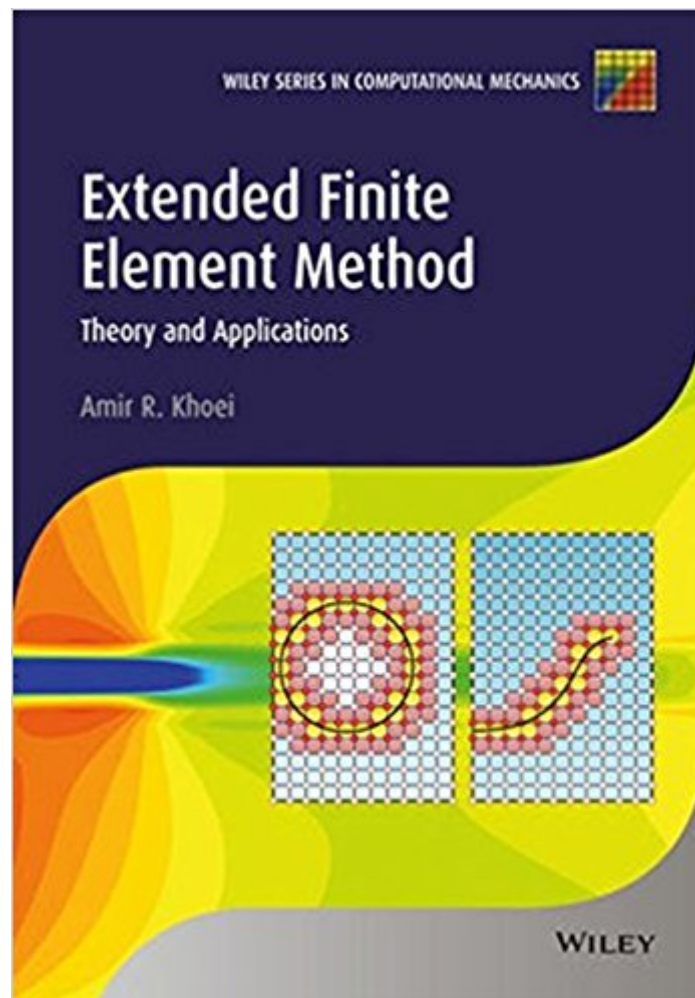




Ebook Directory
the best source of ebook

The book was found

Extended Finite Element Method: Theory And Applications (Wiley Series In Computational Mechanics)



Synopsis

Introduces the theory and applications of the extended finite element method (XFEM) in the linear and nonlinear problems of continua, structures and geomechanics. Explores the concept of partition of unity, various enrichment functions, and fundamentals of XFEM formulation. Covers numerous applications of XFEM including fracture mechanics, large deformation, plasticity, multiphase flow, hydraulic fracturing and contact problems. Accompanied by a website hosting source code and examples.

Book Information

Series: Wiley Series in Computational Mechanics

Hardcover: 584 pages

Publisher: Wiley; 1 edition (February 23, 2015)

Language: English

ISBN-10: 1118457684

ISBN-13: 978-1118457689

Product Dimensions: 7.1 x 1.3 x 9.9 inches

Shipping Weight: 2.4 pounds (View shipping rates and policies)

Average Customer Review: 3.0 out of 5 stars 2 customer reviews

Best Sellers Rank: #2,531,664 in Books (See Top 100 in Books) #82 in [Books > Engineering & Transportation > Engineering > Materials & Material Science > Fracture Mechanics](#) #1451 in [Books > Science & Math > Physics > Mechanics](#) #2022 in [Books > Textbooks > Science & Mathematics > Mechanics](#)

Customer Reviews

The finite element method (FEM) technique has been developed to simulate and analyze complex engineering problems. However, there are a number of drawbacks with finite element simulation of discontinuous problems, such as fracture mechanics problems, including the computational cost of a very fine finite element mesh and the complex remeshing strategy in capturing discontinuity. The extended finite element method (XFEM) has therefore been developed to improve the performance of the conventional finite element method in discontinuity problems. **Extended Finite Element Method: Theory and Applications** introduces the theory and applications of XFEM in the linear and nonlinear problems of continua, structures, and geomechanics. It begins by introducing the concept of a partition of unity, various enrichment functions, and fundamentals of XFEM formulation. It then covers the theory and application of XFEM in large deformations, plasticity, and contact problems.

The implementation of XFEM in fracture mechanics, including linear, cohesive, and ductile crack propagation, is also covered. Finally, the theory and applications of XFEM in multiphase fluid flow, including hydraulic fracturing in soil saturated media and crack propagation in thermo-hydro-mechanical porous media, are discussed in detail. Key features:

- Comprehensively introduces XFEM analysis
- Explains the theory and applications of XFEM in various continuum and geo-mechanical problems
- Includes worked examples
- Accompanied by a website hosting source code and examples

Extended Finite Element Method: Theory and Applications is a comprehensive introduction to XFEM analysis for researchers and practitioners in industry, and is also an ideal textbook for graduate students in mechanical and civil engineering.

Amir R. Khoei, Sharif University of Technology, Iran

A well-written reference for those who want to understand the underlying theory of the extended finite element method, and how to implement it. Gives simple yet detailed illustrative worked examples to help you understand the theory. Also, gives a comprehensive discussion on how the XFEM is applied to various continuum mechanics and geo-mechanical problems. A good reference for senior undergraduate and graduate students working on XFEM.

The book is not a brand new one which were supposed to be.

[Download to continue reading...](#)

Extended Finite Element Method: Theory and Applications (Wiley Series in Computational Mechanics)
The Finite Element Method: Linear Static and Dynamic Finite Element Analysis (Dover Civil and Mechanical Engineering)
The Finite Element Analysis of Shells - Fundamentals (Computational Fluid and Solid Mechanics)
Computational Fluid Mechanics and Heat Transfer, Third Edition (Series in Computational and Physical Processes in Mechanics and Thermal Sciences)
An Introduction to the Finite Element Method, 3rd Edition (McGraw Hill Series in Mechanical Engineering)
Fundamental Finite Element Analysis and Applications: with Mathematica and Matlab Computations
Finite Element Methods for Particle Transport: Applications to Reactor and Radiation Physics (Research Studies in Particle and Nuclear Technology)
A First Course in the Finite Element Method (Activate Learning with these NEW titles from Engineering!)
A First Course in the Finite Element Method
The Finite Element Method for Engineers
An Introduction to the Finite Element Method (McGraw-Hill Mechanical Engineering)
Concepts and Applications of Finite

Element Analysis, 4th Edition The Boundary Element Method for Engineers and Scientists, Second Edition: Theory and Applications Finite Mathematics and Calculus with Applications Plus MyMathLab with Pearson eText -- Access Card Package (10th Edition) (Lial, Greenwell & Ritchey, The Applied Calculus & Finite Math Series) The Mathematical Theory of Finite Element Methods (Texts in Applied Mathematics) Computational Chemistry: Introduction to the Theory and Applications of Molecular and Quantum Mechanics Computational Fluid Mechanics and Heat Transfer, Second Edition (Series in Computational and Physical Processes in Mechanics and Thermal Sciences) The Handbook of Five Element Practice (Five Element Acupuncture) Introduction to Practical Peridynamics: Computational Solid Mechanics Without Stress and Strain (Frontier Research in Computation and Mechanics of Materials) Mechanics of Materials (Computational Mechanics and Applied Analysis)

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)