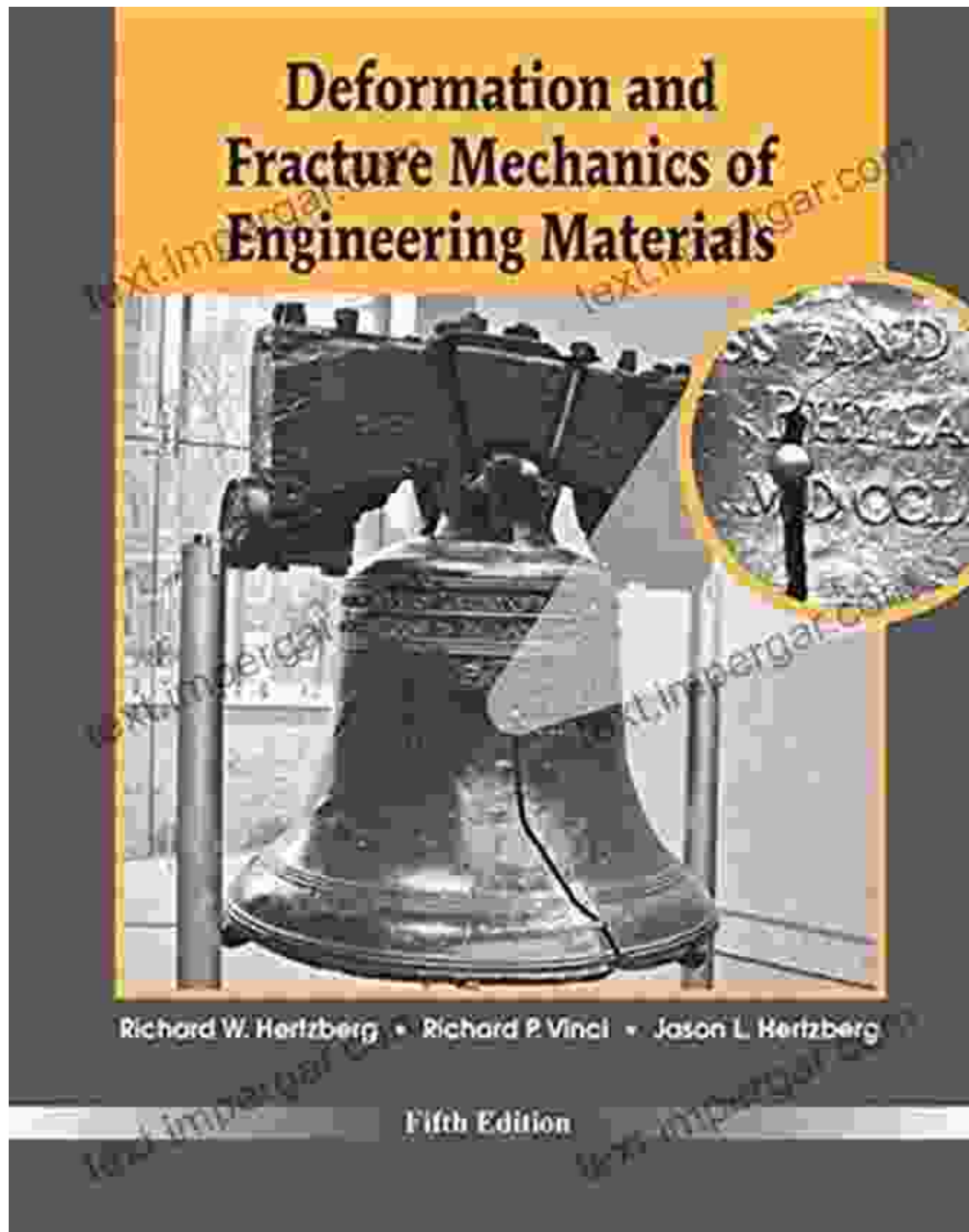
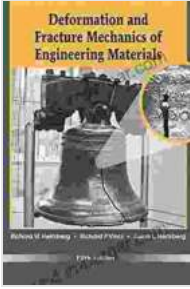


# Unlock the Secrets of Material Behavior with Deformation and Fracture Mechanics of Engineering Materials



Embark on an insightful journey into the realm of material behavior with the definitive guide: Deformation and Fracture Mechanics of

## Engineering Materials, 5th Edition.



### Deformation and Fracture Mechanics of Engineering Materials, 5th Edition by Richard W. Hertzberg

★★★★☆ 4.2 out of 5

Language : English

File size : 21551 KB

Print length : 784 pages



### Why Choose This Book?

- \* **Comprehensive and Authoritative:** Written by renowned materials science expert James R. Rice, this book is the industry-leading reference for understanding the mechanical behavior of engineering materials.
- \* **In-Depth Coverage:** Dive deep into the fundamental principles of deformation, fracture, and failure, exploring the complex relationships between material properties and their performance under various loading conditions.
- \* **Updated and Revised:** The 5th edition boasts significant updates, including new sections on multiscale modeling, additive manufacturing, and the latest advances in experimental techniques.

### What You Will Gain

- \* **Solid Theoretical Foundation:** Grasp the mathematical and physical principles that govern material behavior, empowering you to analyze and predict the response of materials to external forces.

\* **Practical Applications:** Translate theoretical knowledge into real-world engineering applications, ensuring the safe and efficient design of structures, components, and devices.

\* **Enhanced Understanding:** Comprehend the factors that influence material strength, ductility, toughness, and fracture resistance, gaining valuable insights into material selection and design optimization.

## Table of Contents

\* and Historical Perspective\* Elasticity and Plasticity\* Fracture Mechanics\* Crack Initiation and Propagation\* Fatigue of Metals\* Fracture Mechanics Applications\* Creep and Viscoplasticity\* Toughening Mechanisms\* Computational Mechanics\* Multiscale Modeling

## Target Audience

This book is an indispensable resource for:

\* **Materials Scientists and Engineers:** Enhance your understanding of material behavior and design materials for optimal performance. \*

**Mechanical Engineers:** Analyze and predict the failure of components, ensuring structural integrity and safety. \* **Civil Engineers:** Understand the behavior of construction materials, such as concrete and steel, for reliable infrastructure design. \*

\* **Aerospace Engineers:** Design lightweight and durable aircraft components that withstand extreme environments. \*

**Students and Researchers:** Gain a thorough foundation in deformation and fracture mechanics for advanced research and development.

## Testimonials

"An extraordinary resource that provides a comprehensive and insightful examination of the mechanical behavior of engineering materials. A must-have for anyone involved in materials science and engineering."

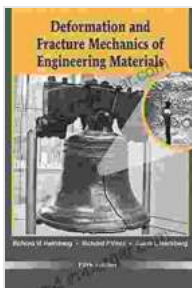
**- Dr. Mark A. Meyers, University of California, San Diego**

"This book is an indispensable reference for understanding the fundamental principles governing material behavior. Highly recommended for students, researchers, and practicing engineers."

**- Prof. William W. Gerberich, University of Minnesota**

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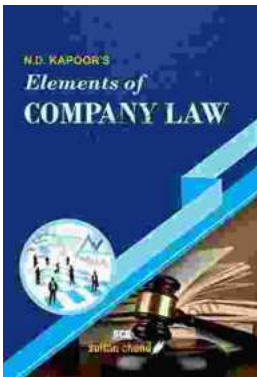
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