



# Engineering Materials 1, Fourth Edition: An Introduction to Properties, Applications and Design

By D R H Jones, Michael F. Ashby

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Widely adopted around the world, *Engineering Materials 1* is a core materials science and engineering text for third- and fourth-year undergraduate students; it provides a broad introduction to the mechanical and environmental properties of materials used in a wide range of engineering applications. The text is deliberately concise, with each chapter designed to cover the content of one lecture. As in previous editions, chapters are arranged in groups dealing with particular classes of properties, each group covering property definitions, measurement, underlying principles, and materials selection techniques. Every group concludes with a chapter of case studies that demonstrate practical engineering problems involving materials.

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### **Editorial Review**

#### Review

"Ashby (emeritus) and Jones (both Cambridge U.) have made considerable changes to the 2005 third edition (the first edition was published in 1980), among them new illustrative photographs, references to reliable websites, and worked examples to many of the chapters. The textbook is for a first course on materials for undergraduate engineering students, holding up one corner of a curriculum that includes design, mechanics, and structures. It covers price and availability; the elastic moduli; yield strength, tensile strength, and ductility; fast fracture, brittle fracture, and toughness; fatigue failure; creep deformation and fracture; oxidation and corrosion; and friction, abrasion, and wear." --**Reference and Research News, October 2012**

#### About the Author

Dr. Jones is co-author of Engineering Materials 1 and 2 and lead author for the 3rd and 4th editions. He was the founder editor of Elsevier's journal Engineering Failure Analysis, and founder chair of Elsevier's International Conference on Engineering Failure Analysis series. His research interests are in materials engineering, and along with serving as President of Christ's College at the University of Cambridge he now works internationally advising major companies and legal firms on failures of large steel structures.

Royal Society Research Professor Emeritus at Cambridge University and Former Visiting Professor of Design at the Royal College of Art, London, UK

Mike Ashby is sole or lead author of several of Elsevier's top selling engineering textbooks, including Materials and Design: The Art and Science of Material Selection in Product Design, Materials Selection in Mechanical Design, Materials and the Environment, and Materials: Engineering, Science, Processing and Design. He is also coauthor of the books Engineering Materials 1&2, and Nanomaterials, Nanotechnologies and Design.

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