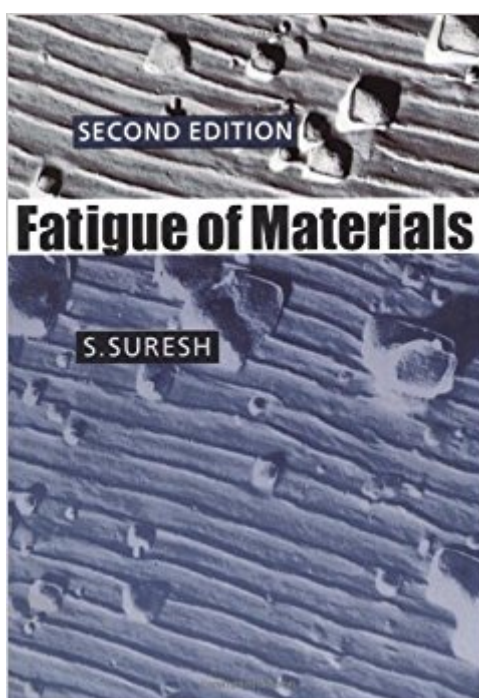


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# Fatigue Of Materials (Cambridge Solid State Science Series) Second Edition



## Synopsis

This revised and updated second edition of a highly successful book provides an authoritative, comprehensive and unified treatment of the mechanics and micromechanisms of fatigue in metals, nonmetals and composites. The author, a leading researcher in the field, discusses the principles of cyclic deformation, crack initiation and crack growth by fatigue, covering both microscopic and continuum aspects. The book begins with discussions of cyclic deformation and fatigue crack initiation in monocrystalline and polycrystalline ductile alloys as well as in brittle and semi-/non-crystalline solids. Total life and damage-tolerant approaches are then introduced in metals, nonmetals and composites. This will be an important reference for anyone studying fracture and fatigue in materials science and engineering, mechanical, civil, nuclear and aerospace engineering, and biomechanics.

## Book Information

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## Customer Reviews

"...a comprehensive and unified treatment of the mechanics and micromechanisms of fatigue...should be of substantial interest to researchers in the area of fatigue who desire an overview of this most important field. It would be an excellent text for a senior-graduate level course on fatigue or a supplement to courses in fracture mechanics or mechanical behavior of materials." Ceramic Abstracts"...an excellent basic text or reference source for engineering principles of fatigue. As a basic text or reference guide, this book represents one of the most complete and up-to-date

references available." Corrosion

Written by a leading researcher in the field, this revised and updated second edition of a highly successful book provides an authoritative, comprehensive and unified treatment of the mechanics and micromechanisms of fatigue in metals, non-metals and composites. This will be an important reference for anyone studying fracture and fatigue in materials science and engineering, mechanical, civil, nuclear and aerospace engineering, and biomechanics.

As someone who does research in this field, the Suresh book is incredibly helpful. The book contains some mechanics, but its main focus is on the mechanics of fatigue, and what happens on a micro-structural level. Whenever I have a question about fatigue, this book answers it. This text may contain a lot more information than needed for an undergraduate course on fatigue, but at the graduate level its perfect.

Reference book in the materials science.

Thanks for the wonderful book!

I like it. use it for my graduate class.

This is perhaps the most comprehensive summary of the fatigue literature up to the time of its publication (2003 for the corrected second edition). It covers all aspects of the fatigue of materials in very great detail. It has chapters on historical aspects, micro-mechanisms of the fatigue process, crack initiation, crack growth, strain-life approaches, stress-life approaches, the influence of environment, behavior of single crystals as well as polycrystalline solids, effects of mean stress and spectrum loading, as well as many other topics. (Rather than being covered in a separate chapter, the statistical aspects of fatigue are covered in various sections.) This is a very good resource for researchers, and one that I used, but I think that its very comprehensiveness detracts from its value as a textbook. There is simply too much material to make it a good text, although it was one that was used for Professor Suresh's MIT course. Professor Suresh tried to include everything (and largely succeeded), but not being selective, a student does not know what are the most important aspects of the subject, requiring a lot of selection and direction on the part of a teacher. I prefer "Metal Fatigue in Engineering" by Stephens et. al. as textbook, especially if the course of study is

self directed.

Good comprehensive book covering various topics. Whole book can be useful only for people in academia or research in my opinion. Practising engineers will find many well written chapters & topics to their liking.

Fatigue of Materials is a good book for researchers and students in fracture mechanics. Book briefly covers stress life and strain life fatigue approaches. Book is written at a graduate level with predominately theoretical content. Author also provides real case studies mainly from aerospace industry. Current topics such as crack retardation, small cracks, mixed mode, crack closure, etc. are covered in this book.

The topical (chapter) layout is extremely coherent, as well, the visual effect is appealing.

Engineering students hoping to do future research in fatigue of materials will find the book to be a cursory introduction, although the non-specialist will find much of the overview of research activities overwhelming as an introduction.

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