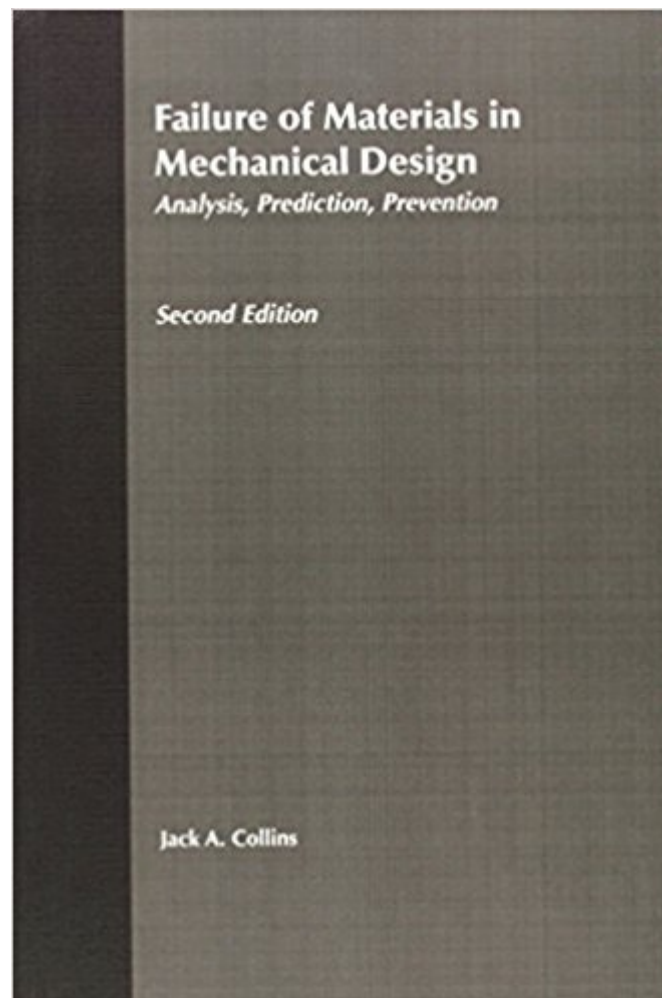




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# **Failure Of Materials In Mechanical Design: Analysis, Prediction, Prevention, 2nd Edition**



## Synopsis

Covers the basic principles of failure of metallic and non-metallic materials in mechanical design applications. Updated to include new developments on fracture mechanics, including both linear-elastic and elastic-plastic mechanics. Contains new material on strain and crack development and behavior. Emphasizes the potential for mechanical failure brought about by the stresses, strains and energy transfers in machine parts that result from the forces, deflections and energy inputs applied.

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Updated to include new developments in fracture mechanics, this new edition delivers the same clear, comprehensive coverage of the subject as its predecessor. Like its predecessor, *Failure of Materials in Mechanical Design, Second Edition* provides a comprehensive examination of every

method now being used to analyze, predict, and prevent such failures. It presents the basic principles of the science, and goes beyond the fundamentals to offer new insights on how to apply this theory to actual design applications. The new edition has been extensively revised and updated with state-of-the-art developments in fracture mechanics - plus all new material on crack development and behavior. It also features new problems and real-world examples. Topics include modes of mechanical failure, strength and deformation of engineering metals, combined stress theories of failure and their use in design, concepts of cumulative damage, life prediction and fracture control, high-cycle fatigue, fatigue testing procedures and statistical interpretations of data, shock and impact, fretting, buckling and instability, and more. As the leading book for advanced undergraduate and graduate courses on mechanical failure, *Failure of Materials in Mechanical Design, Second Edition* will continue to be an invaluable text and reference for mechanical engineers.

Really reccomand this book as a tool book

Great Book

Good addition to my library.

This book has a lot of information, no doubt about it. And you may find some things in it that you'll be hard-pressed to find elsewhere (such as non-linear damage theories, fretting, shock and impact, etc). However, the book is quite theoretical, and information is scattered over various chapters, sometimes making it difficult to find what you're looking for. And when you do find it, the information is often not presented in a precise and detailed manner, which is important whenever you attempt to extend theory to real-life problems. I found this to be the case with the strain-based fatigue discussion, and especially the fracture mechanics coverage, which is cursory at best. I recommend that you first check out Dowling's book ("*Mechanical Behavior of Materials*"). I have found it to be much more useful.

It is a very good book. Gives a broad explanation of failure considerations in the mechanical design process. It is complemented with examples that help to understand. It is a very technical book. Do not expect to pretty color pictures. Math is stated in a sequential way that can be undestood pretty easily. When disscussing a topic recalls some basics before touching partcular details. It is not an

introductory book. A book on mechanical of materials would be a excellent complement. Excellent as a reference.

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