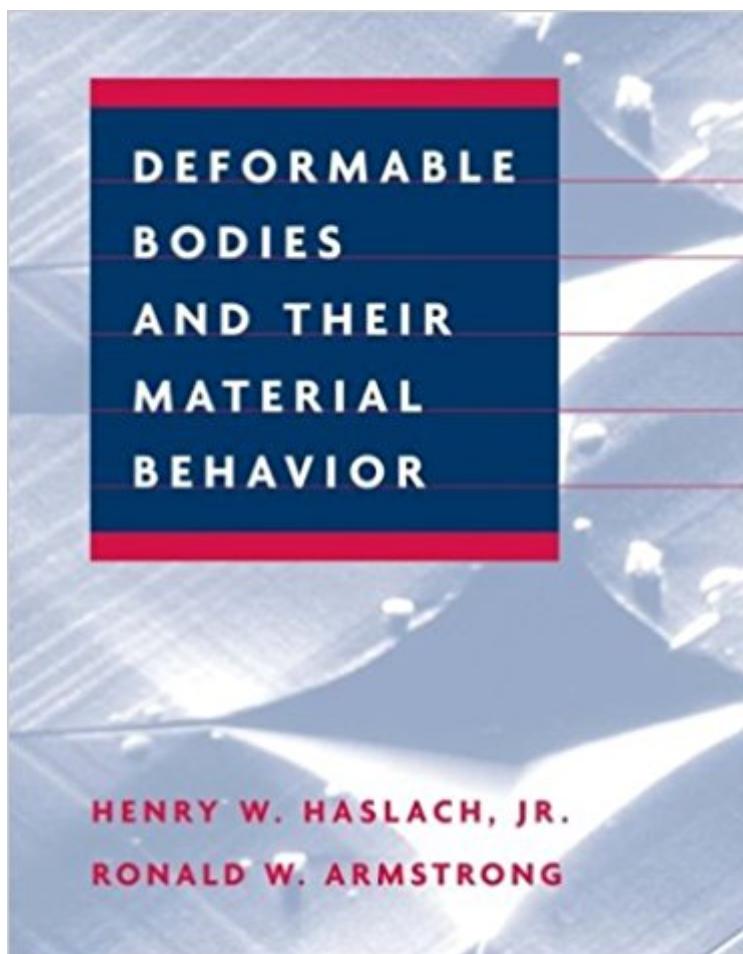


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# Deformable Bodies And Their Material Behavior



## Synopsis

ESSENTIAL TOOLS FOR AVOIDING MATERIAL FUNCTIONAL FAILURE Offering comprehensive, organized, and detailed coverage, Henry Haslach and Ronald Armstrong's *Deformable Bodies and Their Material Behavior* present a quantitative description of the mechanical behavior of a broad range of deformable bodies under widely differing conditions and at a level sufficient to match real behavior, and introduces the key tools needed to avoid material functional failure. Covering stress and deformation analysis, material failure modes, and mechanical rest evaluations of material properties, this text provides the tools, insights, and knowledge needed to build a strong foundation for the design of mechanical devices. Considers most types of materials: metals, ceramics, fibered composites, concrete biological tissue, rubber, polymers, and wood. Focuses on the relationships between material properties of a deformable body and the forces and displacements applied to its boundary. Helps develop an appreciation for the approximations made in producing the mathematical models intended to predict mechanical response. Provides historical background on the definitions and models that designers commonly use, describing the practical reasons why these tools were invented.

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description of the mechanical behavior of a broad range of deformable bodies under widely differing conditions and at a level sufficient to match real behavior, and introduces the key tools needed to avoid material functional failure. Covering stress and deformation analysis, material failure modes, and mechanical rest evaluations of material properties, this text provides the tools, insights, and knowledge needed to build a strong foundation for the design of mechanical devices. **HIGHLIGHTS** Considers most types of materials: metals, ceramics, fibered composites, concrete biological tissue, rubber, polymers, and wood. Focuses on the relationships between material properties of a deformable body and the forces and displacements applied to its boundary. Helps develop an appreciation for the approximations made in producing the mathematical models intended to predict mechanical response. Provides historical background on the definitions and models that designers commonly use, describing the practical reasons why these tools were invented.

For learning about, or seriously reviewing, the broad field of deformable bodies and their material behavior, as a professional engineer, or as someone interested in one of the most fundamental and solid fields at the foundation of pure and applied mathematics, this book is fine. You don't need any more math than you as an engineer are expected to have to use this book - but if you work the problems, or look carefully at them, you'll gain facility and a great deal of intuition. I don't know of any book that combines a better sense of materials with mechanics.

Great book, very well organized. Each chapter is essential complete enough to be self-contained. Shows that not everything in the engineering world is as straight-forward as we're often led to believe. Even provides a bit of history and motivation. The chapters have well done examples and the problems are typically similar.

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