

Mechanics of Materials

by *Madhukar Vable*

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Synopsis

Applications of the principles of mechanics of materials have increased considerably over the last 25 years. Today's routine industrial practices and techniques were only esoteric research topics just a few years ago. That research is now relevant to such diverse but commonplace applications as electronic packaging, medical implantation, geology (seismic prediction), and engineered wood products.

It is in this rapidly changing world that Madhukar Vable's *Mechanics of Materials* takes its place as a standard text for civil, mechanical, and aerospace engineering majors, as well as for any other engineering discipline that includes mechanics of materials as a basic course. Vable's distinct pedagogical approach translates into exceptional features that enhance student participation in learning. It assumes a complementary connection between intuition, experimental observation, and mathematical generalization, suggesting that intuitive development and understanding need not be at odds with mathematical logic, rigor, and generalization. This approach also emphasizes engineering practice without distracting from the main point of the text. With strong practical examples and real-life engineering problems praised by reviewers, *Mechanics of Materials* promises to provide the skills and principles that students need to organize, integrate, and make sense of the flood of information emerging in the world of modern engineering.

Pedagogical Features

Overview: Each chapter begins with a concise Overview that describes the motivation and major learning objective behind the chapter.

Points and Formulas to Remember: Each chapter ends with a convenient one-page synopsis of essential topics.

Plans and Comments: Every example starts with a Plan for solving the problem and ends with Comments that connect the example with previous and future concepts in the text, putting examples firmly into context within the field of mechanics.

Quick Tests: Quick Tests help students effectively diagnose their own understanding of text material.

Consolidate Your Knowledge: These boxes follow major topics and prompt students to write a

synopsis of or derive a formula for material just covered, encouraging development of personal reasoning skills.

General Information: These intriguing sections connect historical development and advanced topics to material in each chapter.

"Stretch Yourself": Problems labeled "Stretch Yourself" contain important reference material that will be useful to students as future engineers.

Closure: Every chapter closes with helpful links to topics in subsequent chapters.

Formula Sheet: These useful sheets are found inside the back cover of the book for easy reference. They list equations of essential topics but include no explanations of variables and equations, making them perfect for use during exams.