

Mechanical Design of Machine Components, Second Edition

By Ansel C. Ugural

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Mechanical Design of Machine Components, Second Edition By Ansel C. Ugural

Mechanical Design of Machine Components, Second Edition strikes a balance between theory and application, and prepares students for more advanced study or professional practice. It outlines the basic concepts in the design and analysis of machine elements using traditional methods, based on the principles of mechanics of materials. The text combines the theory needed to gain insight into mechanics with numerical methods in design. It presents real-world engineering applications, and reveals the link between basic mechanics and the specific design of machine components and machines.

Divided into three parts, this revised text presents basic background topics, deals with failure prevention in a variety of machine elements and covers applications in design of machine components as well as entire machines. Optional sections treating special and advanced topics are also included.

Key Features of the Second Edition:

- Incorporates material that has been completely updated with new chapters, problems, practical examples and illustrations
- Places a strong emphasis on the fundamentals of mechanics of materials as they relate to the study of machine design
- Provides thorough coverage of machine components, including their applications in modern engineering, and some discussion of entire machines
- Presents material selection charts and tables as an aid in specific applications
- Contains selective chapters that include case studies of various components and machines, as well as some open-ended problems
- Includes applied finite element analysis in design, offering an introduction to this useful tool for computer-oriented examples
- Addresses the ABET design criteria in a systematic manner
- Covers optional MATLAB solutions tied to the book and student learning

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Mechanical Design of Machine Components, Second Edition helps you gain a grasp of the fundamentals of machine design and the ability to apply these fundamentals to new engineering problems.

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Editorial Review

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"Ugural has written a very good, comprehensive technical book for machine design. The book covers every fundamental of mechanical design... The author helpfully offers some case studies in which the theory is connected with and implemented in practical application..."

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?Andreas Almqvist, Associate Professor, Division of Machine Elements, Luleå University of Technology, Sweden

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?Dr. Todd D Coburn, PhD, PE, DER, California State Polytechnic University Pomona

About the Author

Ansel C. Ugural is a visiting professor of mechanical engineering at the New Jersey Institute of Technology, Newark, New Jersey. He has held faculty positions at Fairleigh Dickinson University, where he has served for two decades as a professor and chairman of the mechanical engineering department. Professor Ugural earned his MS in mechanical engineering and PhD in engineering mechanics from the University of Wisconsin–Madison. He is the author of several books, including *Stresses in Beams, Plates, and Shells* (CRC Press, 3rd ed., 2010). In addition, he has published numerous articles in trade and professional journals.

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