

## Techmax Publications Engineering Mechanical

"The integration of electronic engineering, electrical engineering, computer technology and control engineering with mechanical engineering -- mechatronics -- now forms a crucial part in the design, manufacture and maintenance of a wide range of engineering products and processes. This book provides a clear and comprehensive introduction to the application of electronic control systems in mechanical and electrical engineering. It gives a framework of knowledge that allows engineers and technicians to develop an interdisciplinary understanding and integrated approach to engineering. This second edition has been updated and expanded to provide greater depth of coverage." -- Back cover.

### Flow in Open Channels Strength Of Materials

This book, written by specialists in the area of solid mechanics, presents the fundamentals of deformable solids in a logical and cogent manner. Illustrative cases and worked examples are added to familiarize the student with problems encountered in engineering practice.

For courses in Machine Design or anyone interested in understanding the theory behind Machine Design. An integrated, case-based approach to Machine Design Machine Design, 5e presents the subject matter in an up-to-date and thorough manner with a strong design emphasis. This book emphasizes failure theory and analysis as well as the synthesis and design aspects of machine elements. The book points out the commonality of the analytical approaches needed to design a wide variety of elements and emphasizes the use of computer-aided engineering as an approach to the design and analysis of these classes of problems.

Power semiconductor devices are discussed in first chapter. SCR, GTO, LASCOR, RCT, MCT, characteristics, rating turn-off and turn-on is presented. Power BJT, MOSFET, IGBT, driving circuits, protection and snubber circuits are also discussed. Commutation circuits and series and parallel operation are presented. Single and three phase controlled converters are given in second chapter. Half wave, full wave, midpoint, semiconverters, full converters, dual converters and effect of source inductance is also given. Operation with resistive and inductive load is discussed. Third chapter presents AC voltage controllers and cycloconverters. On-off control, phase control, triac based controllers are given. Cycloconverters and operations with inductive as well as resistive load are discussed. Choppers are given in fourth chapter. Step down, step up, voltage, current and load commutated choppers are given. Classification is also discussed. Last chapter presents inverters. Half bridge, full bridge, quasi square wave, push-pull, thyristorized inverters with resistive and inductive loads are given. Switching techniques for PWM inverters are also given.

Revised extensively, the new edition of this text conforms to the syllabi of all Indian Universities in India. This text strictly focuses on the undergraduate syllabus of Design of Machine Elements I and II , offered over two semesters.

This third edition of what has become a modern classic presents a lively overview of Materials Science which is ideal for students of Structural Engineering. It contains chapters on the structure of engineering materials, the determination of mechanical properties, metals and alloys, glasses and ceramics, organic polymeric materials and composite materials. It contains a section with thought-provoking questions as well as a series of useful appendices. Tabulated data in the body of the text, and the appendices, have been selected to increase the value of

Materials for engineering as a permanent source of reference to readers throughout their professional lives. The second edition was awarded Choice's Outstanding Academic Title award in 2003. This third edition includes new information on emerging topics and updated reading lists.

Advanced Heat Transfer, Second Edition provides a comprehensive presentation of intermediate and advanced heat transfer, and a unified treatment including both single and multiphase systems. It provides a fresh perspective, with coverage of new emerging fields within heat transfer, such as solar energy and cooling of microelectronics. Conductive, radiative and convective modes of heat transfer are presented, as are phase change modes. Using the latest solutions methods, the text is ideal for the range of engineering majors taking a second-level heat transfer course/module, which enables them to succeed in later coursework in energy systems, combustion, and chemical reaction engineering.

It is challenging at best to find a resource that provides the breadth of information necessary to develop a successful micro electro mechanical system (MEMS) design. Micro Electro Mechanical System Design is that resource. It is a comprehensive, single-source guide that explains the design process by illustrating the full range of issues involved, how they are interrelated, and how they can be quickly and accurately addressed. The materials are presented in logical order relative to the manner a MEMS designer needs to apply them. For example, in order for a project to be completed correctly, on time, and within budget, the following diverse yet correlated issues must be attended to during the initial stages of design and development: Understanding the fabrication technologies that are available Recognizing the relevant physics involved for micron scale devices Considering implementation issues applicable to computer aided design Focusing on the engineering details and the subsequent evaluation testing Maintaining an eye for detail regarding both reliability and packaging These issues are fully addressed in this book, along with questions and problems at the end of each chapter that promote review and further contemplation of each topic. In addition, the appendices offer information that complement each stage of project design and development. Develop high-performance hydraulic and pneumatic power systems Design, operate, and maintain fluid and pneumatic power equipment using the expert information contained in this authoritative volume. Fluid Power Engineering presents a comprehensive approach to hydraulic systems engineering with a solid grounding in hydrodynamic theory. The book explains how to create accurate mathematical models, select and assemble components, and integrate powerful servo valves and actuators. You will also learn how to build low-loss transmission lines, analyze system performance, and optimize efficiency. Work with hydraulic fluids, pumps, gauges, and cylinders Design transmission lines using the lumped parameter model Minimize power losses due to friction, leakage, and line resistance Construct and operate accumulators, pressure switches, and filters Develop mathematical models of electrohydraulic servosystems Convert hydraulic power into mechanical energy using actuators Precisely control load displacement using HSAs and control valves Apply fluid systems techniques to pneumatic power systems

Mechanical Vibrations: Theory and Applications takes an applications-based approach at teaching students to apply previously learned engineering principles while laying a foundation for engineering design. This text provides a brief review of the principles of dynamics so that terminology and notation are consistent and applies these principles to derive mathematical models of dynamic mechanical systems. The methods of application of these principles are consistent with popular Dynamics texts. Numerous pedagogical features have been included in the text in order to aid the student with comprehension and retention. These include the development of three benchmark problems which are revisited in each chapter, creating a coherent chain linking all chapters in the book. Also included are learning outcomes, summaries of key concepts including important equations and formulae, fully solved examples

with an emphasis on real world examples, as well as an extensive exercise set including objective-type questions. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Revised extensively and updated with several new topics, this book discusses the principles and applications of "Heat and Mass Transfer". It is written with extensive pedagogy, clear explanations and examples throughout to elucidate the concepts and facilitate problem solving. Building on the success of 'Modelling, Analysis, and Control of Dynamic Systems', 2nd edition, William Palm's new book offers a concise introduction to vibrations theory and applications. Design problems give readers the opportunity to apply what they've learned. Case studies illustrate practical engineering applications.

'Programming .NET Components', second edition, updated to cover .NET 2.0., introduces the Microsoft .NET Framework for building components on Windows platforms. From its many lessons, tips, and guidelines, readers will learn how to use the .NET Framework to program reusable, maintainable, and robust components.

An introduction to the engineering principles of embedded systems, with a focus on modeling, design, and analysis of cyber-physical systems. The most visible use of computers and software is processing information for human consumption. The vast majority of computers in use, however, are much less visible. They run the engine, brakes, seatbelts, airbag, and audio system in your car. They digitally encode your voice and construct a radio signal to send it from your cell phone to a base station. They command robots on a factory floor, power generation in a power plant, processes in a chemical plant, and traffic lights in a city. These less visible computers are called embedded systems, and the software they run is called embedded software. The principal challenges in designing and analyzing embedded systems stem from their interaction with physical processes. This book takes a cyber-physical approach to embedded systems, introducing the engineering concepts underlying embedded systems as a technology and as a subject of study. The focus is on modeling, design, and analysis of cyber-physical systems, which integrate computation, networking, and physical processes. The second edition offers two new chapters, several new exercises, and other improvements. The book can be used as a textbook at the advanced undergraduate or introductory graduate level and as a professional reference for practicing engineers and computer scientists. Readers should have some familiarity with machine structures, computer programming, basic discrete mathematics and algorithms, and signals and systems.

This book, which is a result of the author's many years of teaching, exposes the readers to the fundamentals of mechanical vibrations and noise engineering. It provides them with the tools essential to tackle the problem of vibrations produced in machines and structures due to unbalanced forces and the noise produced thereof. The text lays emphasis on mechanical engineering applications of the subject and develops conceptual understanding with the help of many worked-out examples. What distinguishes the text is that three chapters are devoted to Sound Level and Subjective Response to Sound, Noise: Effects, Ratings and Regulations and Noise: Sources, Isolation and Control. Importance of mathematical formulation in converting a distributed parameter vibration problem into an equivalent lumped parameter problem is also emphasized. Primarily designed as a text for undergraduate and postgraduate students of mechanical engineering, this book would also be useful for undergraduate and postgraduate students of civil, aeronautical and automobile engineering as well as

practising engineers.

The popularity of all the earlier thirteen editions of the book among the students as well as the teachers has made it possible to bring out the fourteenth edition of the book so soon. In this edition the book has been brought out in A-4 size thereby considerably enhancing the general get-up of the book. The book in this fourteenth edition is entirely in SI Units and it has been thoroughly revised in the light of the valuable suggestions received from the learned professors and the students of the various Universities. Accordingly several new articles have been added. The answers of all the illustrative examples and the problems have been checked and corrected. Moreover, several new problems from the latest question papers of the different Universities as well as competitive examinations have been incorporated. Thus, it may be emphatically stated that the book is complete in all respects and it covers the entire syllabus in the subject for degree students in the different branches of engineering for almost all the Universities. Therefore this Single Book fulfills the entire needs of the students intending to appear at the various University Examinations and also for those intending to appear at the various competitive examination such as engineering services and the ICS examinations and for those preparing for AMIE examinations. **OUTSTANDING FEATURES** " Twenty nine chapters covering entire subject matter of Fluid Mechanics, Hydraulics and Hydraulic Machines. " SI Units used for the entire book " More than 200 multiple choice questions with answers " Appendix containing computer programs to solve problems of uniform and critical flows in open channels. " Ten appendixes dealing with some important topics.

Engineering Metrology and Measurements is a textbook designed for students of mechanical, production and allied disciplines to facilitate learning of various shop-floor measurement techniques and also understand the basics of mechanical measurements.

Now in its eighth edition, Higher Engineering Mathematics has helped thousands of students succeed in their exams. Theory is kept to a minimum, with the emphasis firmly placed on problem-solving skills, making this a thoroughly practical introduction to the advanced engineering mathematics that students need to master. The extensive and thorough topic coverage makes this an ideal text for upper-level vocational courses and for undergraduate degree courses. It is also supported by a fully updated companion website with resources for both students and lecturers. It has full solutions to all 2,000 further questions contained in the 277 practice exercises.

Machine Design is interdisciplinary and draws its matter from different subjects such as Thermodynamics, Fluid Mechanics, Production Engineering, Mathematics etc. to name a few. As such, this book serves as a databook for various subjects of Mechanical Engineering. It also acts as a supplement to our popular book, Design of Machine Elements. It's a concise, updated data handbook that maps with the syllabi of all major universities and technical boards of India as well as professional examining bodies such as Institute of Engineers. Now in its seventh edition, Basic Engineering Mathematics is an established textbook that has helped thousands of students to succeed in their exams. Mathematical theories are explained in a straightforward manner, being

supported by practical engineering examples and applications in order to ensure that readers can relate theory to practice. The extensive and thorough topic coverage makes this an ideal text for introductory level engineering courses. This title is supported by a companion website with resources for both students and lecturers, including lists of essential formulae, multiple choice tests, and full solutions for all 1,600 further questions.

Experimental Fluid Mechanics, Second Edition, discusses the fundamental concepts of fluid mechanics. The book begins with a discussion of the use of dimensional analysis, in particular the way in which it can be used to relate the results of model tests to flows at full scale. A chapter on wind tunnels follows; because tunnels and other test rigs with similar features are the basic test facilities of laboratory fluid mechanics, and because most of the physical and mathematical features of the subject are well illustrated by the flow in wind tunnels. Subsequent chapters discuss techniques of measurements—fluid velocity and shear stress measurements, pressure measurements, force and position measurements, and flow visualization; the conduct of experiments and the writing of reports; and the last chapter is a survey of specialized branches of fluid mechanics. This book is intended for students of the theory of fluid mechanics, who must also learn about the physical situations which the theory represents, and especially for those who contemplate specializing in the experimental side of the subject rather than the theoretical side.

**GREEN BUILDING: PRINCIPLES AND PRACTICES IN RESIDENTIAL CONSTRUCTION** provides a current, comprehensive guide to this exciting, emerging field. From core concepts to innovative applications of cutting-edge technology and the latest industry trends, this text offers an in-depth introduction to the construction of green homes. Unlike many texts that adopt a product-oriented approach, this book emphasizes the crucial planning, processes, and execution methods necessary for effective, environmentally sound construction. This text demonstrates that Earth-friendly products and energy-efficient materials take planning in order to make a building truly green. This visionary text helps students and professionals develop the knowledge and skills to think green from start to finish, empowering and inspiring them to build truly sustainable homes. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

A concise book for candidates appearing for Mechanical Engineering Exams. The Ultimate Guide to Buying and Selling Learn how to buy and sell from someone who knows how to watch, wait, and profit from market signals. Benefit from someone with more than 20 years experience. Steve has done the research so you don't have to. This book is a game changer, whether you are just starting out, or you need a refresher. Not sure how to build your buy/sell system? These proven tactics will help you develop a system that is hard to beat. Just add your determination and a will to succeed, and you'll be well on your way to trading like a pro. This book: Tells why you should create signals How to create signals Sample signals Examples from some of the best in the world Get started Don't run the risk of ruin by ignoring these signals! Buy this book today!

The second edition of this well-received book, continues to present the operating principles and working aspects of thermal and hydraulic machines. First, it covers the laws and the essential principles of thermodynamics that form the basis on which thermal machines operate. It subsequently presents the principles, construction details and the methods of control of hydraulic and thermal machines. The coverage of thermal machines includes steam turbines, gas turbines, IC engines, and reciprocating and centrifugal compressors. The coverage of hydraulic machines includes hydraulic turbines, reciprocating pumps and centrifugal pumps. The classification, construction and efficiency of these machines have been discussed with plenty of diagrams and worked problems. This will help the readers understand easily the underlying principles. This new edition includes substantially updated chapters and also introduces additional text as per the syllabus requirement. The book is intended for the undergraduate engineering students pursuing courses in mechanical, electrical and civil branches. **KEY FEATURES :** Provides succinct coverage of all operating aspects of thermal and hydraulic machines. Includes a large number of worked problems at the end of each chapter to help students achieve a sound understanding of the subject matter. Gives objective type questions with explanatory answers to assist students in preparing for competitive examinations.

The term design means to plan for the construction of an object or the formulation of a plan for the satisfaction of need. The term machine design deals with the design of machines, their mechanisms and elements. Design of Machine Element (DME) may be defined as the selection of material and the dimensions for each geometrical parameter so that the element satisfies its function and undesirable effects are kept within the allowable limit. Machine elements are basic mechanical parts and features used as the building blocks of most machines. This book provides a systematic exposition of the basic concepts and techniques involved in design of machine elements. This book covers design of important elements such as gears, bearings and belt drives. Our hope is that this book, through its careful explanations of concepts, practical examples and figures bridges the gap between knowledge and proper application of that knowledge.

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