

Advanced Engineering Mathematics Book Atul Prakashan

This textbook differs from others in the field in that it has been prepared very much with students and their needs in mind, having been classroom tested over many years. It is a true “learner’s book” made for students who require a deeper understanding of probability and statistics. It presents the fundamentals of the subject along with concepts of probabilistic modelling, and the process of model selection, verification and analysis. Furthermore, the inclusion of more than 100 examples and 200 exercises (carefully selected from a wide range of topics), along with a solutions manual for instructors, means that this text is of real value to students and lecturers across a range of engineering disciplines. Key features: Presents the fundamentals in probability and statistics along with relevant applications. Explains the concept of probabilistic modelling and the process of model selection, verification and analysis. Definitions and theorems are carefully stated and topics rigorously treated. Includes a chapter on regression analysis. Covers design of experiments. Demonstrates practical problem solving throughout the book with numerous examples and exercises purposely selected from a variety of engineering fields. Includes an accompanying online Solutions Manual for instructors containing complete step-by-step solutions to all problems.

A Simplified Approach For Beginners& Can you multiply 231072 by 110649 and get the answer in just a single line? Can you find the cube root of 262144 or 704969 in two seconds? Can you predict the birth-date of a person without him telling you? Can you predict how much money a person has without him telling you? Can you check the final answer without solving the question? Or, in a special case, get the final answer without looking at the question? Can you solve squares, square roots, cube-roots and other problems mentally?All this and a lot more is possible with the techniques of Vedic Mathematics described in this book. The techniques are useful for students, professionals and businessmen. The techniques of Vedic Mathematics have helped millions of students all over the world get rid of their fear of numbers and improve their scores in quantitative subjects. Primary and secondary school students have found the Vedic mathematics approach very exciting. Those giving competitive exams like MBA, MCA, CET, UPSC, GRE, GMAT etc. have asserted that Vedic Mathematics has helped them crack the entrance tests of these exams.

Engineering Mathematics Alpha Science International, Limited

Written by skilled specialists in the field of interventional pulmonology, the new Second Edition thoroughly explores the latest advancements, newest therapies, and diagnostic techniques in interventional pulmonary medicine. Using guidelines to ensure maximum quality and efficiency in patient care, this concise text is a must-have resource for all pulmonologists and critical care specialists. New features in the Second Edition include: the latest applications of bronchoscopic therapy for benign conditions (such as COPD and asthma), including endobronchial valves, airway bypass, chemical applications, and thermoplasty diagnostic techniques for airway cancer and peripheral lesions: fluorescence, narrow band, and navigational bronchoscopy, OCT, confocal and raman microscopy, and peripheral EBUS silicone, metal, and hybrid airway stents advances in endoscopic staging of lung cancer new bronchoscopic instrumentation, including the Ultra Thin Scope and Therapeutic Scope, and biopsy measuring and foreign body devices

An Introduction to Optimization Techniques introduces the basic ideas and techniques of optimization. Optimization is a precise procedure using design constraints and criteria to enable the planner to find the optimal solution. Optimization techniques have been applied in numerous fields to deal with different practical problems. This book is designed to give the reader a sense of the challenge of analyzing a given situation and formulating a model for it while explaining the assumptions and inner structure of the methods discussed as fully as possible. It includes real-world examples and applications making the book accessible to a broader readership. Features Each chapter begins with the Learning Outcomes (LO) section, which highlights the critical points of that chapter. All learning outcomes, solved examples and questions are mapped to six Bloom Taxonomy levels (BT Level). Book offers fundamental concepts of optimization without becoming too complicated. A wide range of solved examples are presented in each section after the theoretical discussion to clarify the concept of that section. A separate chapter on the application of spreadsheets to solve different optimization techniques. At the end of each chapter, a summary reinforces key ideas and helps readers recall the concepts discussed. The wide and emerging uses of optimization techniques make it essential for students and professionals. Optimization techniques have been applied in numerous fields to deal with different practical problems. This book serves as a textbook for UG and PG students of science, engineering, and management programs. It will be equally useful for Professionals, Consultants, and Managers.

Emphasizing problem-solving skills throughout, this fifth edition of Chapman's highly successful book teaches MATLAB as a technical programming language, showing students how to write clean, efficient, and well-documented programs, while introducing them to many of the practical functions of MATLAB. The first eight chapters are designed to serve as the text for an Introduction to Programming / Problem Solving course for first-year engineering students. The remaining chapters, which cover advanced topics such as I/O, object-oriented programming, and Graphical User Interfaces, may be covered in a longer course or used as a reference by engineering students or practicing engineers who use MATLAB. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Special Features: · Discusses all important topics in 15 well-organized chapters.· Highlights a set of learning goals in the beginning of all chapters.· Substantiate all theories with solved examples to understand the topics.· Provides vast collections of problems and MCQs based on exam papers.· Lists all important formulas and definitions in tables in chapter summaries.· Explains Process Capability and Six Sigma metrics coupled with Statistical Quality Control in a full dedicated chapter.· Presents all important statistical tables in 7 appendixes. · Includes excellent pedagogy:- 177 figures- 69 tables- 210 solved examples - 248 problem with answers- 164 MCQs with answers About The Book: Probability and Statistics for Engineers is written for undergraduate students of engineering and physical sciences. Besides the students of B.E. and B.Tech., those pursuing MCA and MCS can also find the book useful. The book is equally useful to six sigma practitioners in industries.A comprehensive yet concise, the text is well-organized in 15 chapters that can be covered in a one-semester course in probability and statistics. Designed to meet the requirement of engineering students, the text covers all important topics, emphasizing basic engineering and science applications. Assuming the knowledge of elementary calculus, all solved examples are real-time, well-chosen, self-explanatory and graphically illustrated that help students understand the concepts of each topic. Exercise problems and MCQs are given with answers. This will help students well prepare for their exams.

Nancy travels to Canada to stop a blackmailer. All sorts of successful people are being blackmailed from the same social circles. As Nancy gets deeper in to the case she senses a master criminal—someone as smart as she is—but on the wrong side of the law.

Often physics professionals are not comfortable using the mathematical tools that they learn in school, and this book discusses the mathematics that physics professionals need to master. This book provides the necessary tools and shows how to use those tools specifically in physics problems. (Midwest).

A graduate-level text utilizing exterior differential forms in the analysis of a variety of mathematical problems in the physical and engineering sciences. Includes 45 illustrations. Index.

This book is designed for the 3rd semester gtu engineering students pursuing the probability and statistics (code 3130006). The crisp but complete explanation of topics will help the students easily

understand the basic concepts. The tutorial approach (I.E. Teach by example) followed in the text will enable students develop a logical perspective to solving problems.

"A longtime classic text in applied mathematics, this volume also serves as a reference for undergraduate and graduate students of engineering. Topics include real variable theory, complex variables, linear analysis, partial and ordinary differential equations, and other subjects. Answers to selected exercises are provided, along with Fourier and Laplace transformation tables and useful formulas. 1978 edition"-- The first person who will live to be 150 years old has already been born. The screen that we peer into will soon be within us. We could soon be taking happiness pills before breakfast. The perfect partner might need to be charged before bed. This is a new world we are walking into. And the man who began this journey won't be the man who ends this journey. Where Will Man Take Us? explores the changes technology is bringing about in us-as a society and as a species. What will the next generation turn into, what will it be like, how will the new Adam and Eve live and love? In this book, Atul Jalan tackles nanotechnology, artificial intelligence, quantum computing and genetics, seamlessly weaving the future of technology with the changing dynamics of human love, morality and ethics.

Covers topics on Functions of one variable, Functions of several variables, Solution of Ordinary differential equations, Laplace Transforms, Evaluation of multiple integrals, Vector differential and integral calculus. This book lays emphasis on presentation of fundamentals and theoretical concepts in an intelligible and easy to understand manner.

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.

This more-of-physics, less-of-math, insightful and comprehensive book simplifies computational fluid dynamics for readers with little knowledge or experience in heat transfer, fluid dynamics or numerical methods. The novelty of this book lies in the simplification of the level of mathematics in CFD by presenting physical law (instead of the traditional differential equations) and discrete (independent of continuous) math-based algebraic formulations. Another distinguishing feature of this book is that it effectively links theory with computer program (code). This is done with pictorial as well as detailed explanations of implementation of the numerical methodology. It also includes pedagogical aspects such as end-of-chapter problems and carefully designed examples to augment learning in CFD code-development, application and analysis. This book is a valuable resource for students in the fields of mechanical, chemical or aeronautical engineering.

Note: This is the 3rd edition. If you need the 2nd edition for a course you are taking, it can be found as a "other format" on amazon, or by searching its isbn: 1534970746 This gentle introduction to discrete mathematics is written for first and second year math majors, especially those who intend to teach. The text began as a set of lecture notes for the discrete mathematics course at the University of Northern Colorado. This course serves both as an introduction to topics in discrete math and as the "introduction to proof" course for math majors. The course is usually taught with a large amount of student inquiry, and this text is written to help facilitate this. Four main topics are covered: counting, sequences, logic, and graph theory. Along the way proofs are introduced, including proofs by contradiction, proofs by induction, and combinatorial proofs. The book contains over 470 exercises, including 275 with solutions and over 100 with hints. There are also Investigate! activities throughout the text to support active, inquiry based learning. While there are many fine discrete math textbooks available, this text has the following advantages: It is written to be used in an inquiry rich course. It is written to be used in a course for future math teachers. It is open source, with low cost print editions and free electronic editions. This third edition brings improved exposition, a new section on trees, and a bunch of new and improved exercises. For a complete list of changes, and to view the free electronic version of the text, visit the book's website at discrete.openmathbooks.org

"The subject matter of the book has been organized in two parts covering the syllabi of both first and second semester."--Pref.

An overview of algorithms important to computational structural biology that addresses such topics as NMR and design and analysis of proteins. Using the tools of information technology to understand the molecular machinery of the cell offers both challenges and opportunities to computational scientists. Over the past decade, novel algorithms have been developed both for analyzing biological data and for synthetic biology problems such as protein engineering. This book explains the algorithmic foundations and computational approaches underlying areas of structural biology including NMR (nuclear magnetic resonance); X-ray crystallography; and the design and analysis of proteins, peptides, and small molecules. Each chapter offers a concise overview of important concepts, focusing on a key topic in the field. Four chapters offer a short course in algorithmic and computational issues related to NMR structural biology, giving the reader a useful toolkit with which to approach the fascinating yet thorny computational problems in this area. A recurrent theme is understanding the interplay between biophysical experiments and computational algorithms. The text emphasizes the mathematical foundations of structural biology while maintaining a balance between algorithms and a nuanced understanding of experimental data. Three emerging areas, particularly fertile ground for research students, are highlighted: NMR methodology, design of proteins and other molecules, and the modeling of protein flexibility. The next generation of computational structural biologists will need training in geometric algorithms, provably good approximation algorithms, scientific computation, and an array of techniques for handling noise and uncertainty in combinatorial geometry and computational biophysics. This book is an essential guide for young scientists on their way to research success in this exciting field.

Michael Goodrich and Roberto Tamassia, authors of the successful, Data Structures and Algorithms in Java, 2/e, have written Algorithm Engineering, a text designed to provide a comprehensive introduction to the design, implementation and analysis of computer algorithms and data structures from a modern perspective. This book offers theoretical analysis techniques as well as algorithmic design patterns and experimental methods for the engineering of algorithms. Market: Computer Scientists; Programmers.

This book has been designed as per the Mathematics - 2 course offered in the first year to the undergraduate engineering students of GTU. The book provides in-depth coverage and complete explanation of topics which will help in easy understanding of the basic concepts. The methodical approach followed in the book will enable readers to develop a logical outlook for the course. Salient Features: ? Complete coverage of the GTU syllabus ? Solutions of GTU examination questions within chapters ? Diverse pedagogy o Chapter outline, Points to remember etc. o Solved examples within chapters: 649 o Unsolved problems within chapters: 561

The present book volume presents a holistic view of the aspects of nanobiomaterials incl. their stellar merits and limitations, applications in diverse fields, their futuristic promise in the fields of biomedical science and drug delivery. The federal & regulatory issues on the usage of nanobiomaterials have been assigned due consideration.

With the rapid growth of wireless communications, this book meets the strong demand for information and new research in the area of antenna, signal processing, and microelectronics engineering. Providing an interdisciplinary platform, it brings together leading academicians, scientists, and researchers to share information on innovations, trends, and advances as well as the challenges encountered in this field. The chapters address the functional framework in the area of antenna, signal processing, and microelectronics engineering and explore the concepts from the basic to advanced level. Key features: • Addresses the functional framework in the area of antenna, signal processing, and microelectronics engineering • Covers the major challenges, issues, and advances in antennas, signal processing, and microelectronics engineering • Explores optimization techniques for smart antenna and microelectronics for different applications • Explores different materials and design techniques in the area of antennas and microelectronics

The functionalization of nanomaterials provides them with some unique properties, making the same nanomaterial amenable for various applications by simply manipulating functional components. However, functionalized nanomaterials also face some challenges, along with some encouraging new applications in the future. This book provides a detailed account of applications of the functionalization of nanomaterials. This book can serve as a reference book for scientific investigators, including doctoral and post-doctoral scholars and undergraduate and graduate students, in context with the scope of applications of functionalized nanomaterials. It also highlights recent advances, challenges, and opportunities in the application of nanomaterials. This book will provide critical and comparative data for nanotechnologists. It may also be beneficial for multidisciplinary researchers, industry personnel, journalists, policy makers, and the common public to understand the scope of functionalized nanomaterials in detail and in depth. Features: This book covers various applications of functionalized nanomaterials. It discusses recent global research trends and future applications of functionalized nanomaterials. It highlights the need for more rigorous regulatory frameworks for the safe use of functionalized nanomaterials. It contains contributions from international experts and will be a valuable resource for researchers.

NATIONAL BESTSELLER 2nd REVISED & UPDATED EDITION With Trigonometry Vedic mathematics is gaining widespread popularity among the student community as well as maths lovers. The absence of a book, explaining the techniques in a simple language, has been felt acutely for a long time. This book has been written using a step-by-step approach, and attempts to fill the existing void. It includes several solved problems in addition to 1000 practice problems with answers. It also includes a special chapter which shows the application of the techniques to problems set in competitive exams like CAT, CET etc. People from all walks of life including school and college students, teachers, parents and also those from non-mathematical areas of study will discover the joys of solving mathematical problems using the wonderful set of techniques called Vedic Maths. The CRC Handbook of Thermal Engineering, Second Edition, is a fully updated version of this respected reference work, with chapters written by leading experts. Its first part covers basic concepts, equations and principles of thermodynamics, heat transfer, and fluid dynamics. Following that is detailed coverage of major application areas, such as bioengineering, energy-efficient building systems, traditional and renewable energy sources, food processing, and aerospace heat transfer topics. The latest numerical and computational tools, microscale and nanoscale engineering, and new complex-structured materials are also presented. Designed for easy reference, this new edition is a must-have volume for engineers and researchers around the globe.

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.

Designed as a supplement to all current standard textbooks or as a textbook for a formal course in the mathematical methods of engineering and science.

An engineering professor who started out doing poorly in mathematical and technical subjects in school offers tools, tips and techniques to learning the creative and analytical thought processes that will lead to achievement in math and science. Original.

This book highlights the latest advances in engineering mathematics with a main focus on the mathematical models, structures, concepts, problems and computational methods and algorithms most relevant for applications in modern technologies and engineering. In particular, it features mathematical methods and models of applied analysis, probability theory, differential equations, tensor analysis and computational modelling used in applications to important problems concerning electromagnetics, antenna technologies, fluid dynamics, material and continuum physics and financial engineering. The individual chapters cover both theory and applications, and include a wealth of figures, schemes, algorithms, tables and results of data analysis and simulation. Presenting new methods and results, reviews of cutting-edge research, and open problems for future research, they equip readers to develop new mathematical methods and concepts of their own, and to further compare and analyse the methods and results discussed. The book consists of contributed chapters covering research developed as a result of a focused international seminar series on mathematics and applied mathematics and a series of three focused international research workshops on engineering mathematics organised by the Research Environment in Mathematics and Applied Mathematics at Mälardalen University from autumn 2014 to autumn 2015: the International Workshop on Engineering Mathematics for Electromagnetics and Health Technology; the International Workshop on Engineering Mathematics, Algebra, Analysis and Electromagnetics; and the 1st Swedish-Estonian International Workshop on Engineering Mathematics, Algebra, Analysis and Applications. It serves as a source of inspiration for a broad spectrum of

researchers and research students in applied mathematics, as well as in the areas of applications of mathematics considered in the book.

This book presents the state-of-the-art advances and applications of nanozymes, the recently developing branch of enzymology that synthesizes and uses nanomaterials that mimic the function of traditional enzymes. During the past decade, the study of nanozymes has grown rapidly. Several new nanomaterials that exhibit enzymatic actions have been identified, along with new applications for their practical use. This book draws upon the work of experts from around the world and provides an in-depth analysis and cutting-edge overview of nanozymes, with an eye toward their present and future applications. Chapters are arranged in a logical order to provide physio-chemical characterization of nanozyme and basic mechanisms of their enzymatic actions. Focusing on current limitations of nanozymes and their reaction kinetics, the book presents a comprehensive discourse on nanozyme engineering that includes possible surface modifications to enhance nanozyme effectiveness. It also focuses on traditional and novel nanozyme applications, such as biosensing, drug delivery, and disease therapy, as well as their use as antibacterials. An important addition in this book is the summary of emerging literature on nanozyme toxicology. This book is intended as a ready reference for advanced undergraduate and graduate students doing research in nanotechnology; materials science; chemistry; and chemical, biological, biomedical, and food engineering. Research and development scientists, engineers, and technologists working in the chemical and biological/biomedical industries will gain much from the materials in this book for their industry practice. Presents a comprehensive discourse on nanozyme engineering that includes possible surface modifications to enhance nanozyme effectiveness. Discusses metal organic frameworks as nanozymes. Reviews on traditional and novel nanozyme applications, such as biosensing, drug delivery, disease therapy, and their use as antibacterials. Examines nanozyme toxicology. Dr. Sundaram Gunasekaran is a Professor in the Department of Biological Systems Engineering at the University of Wisconsin–Madison.

There has been ever increasing interest in understanding the various aspects of available resources and production, in terms of need and supply, conservation and environmental impacts and so on. From the current energy scenario, it is very clear that there are serious challenges related in achieving energy sustainability and security worldwide. The aim of this book is to present an overview of progress made towards energy sustainability addressing concerns regarding carbon emission and clean energy resources. Keeping this in mind, the book has chapters on all major energy sources which are being utilized at present, along with those having potential prospects for future.

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