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Mathematics for Computer Science CRC Press

Mechatronics has emerged as its own discipline over the past decade, yet no reference has lived up to the demands of being a working guide for designing and implementing the new generation of mechatronic systems. Uniting an international team of leading experts, *Mechatronic Systems: Devices, Design, Control, Operation and Monitoring* rises to the ch

Digital Electronics Springer Science & Business Media
Using a "learn by example" approach, this exploration of the fundamental tools of numerical methods covers both modern and older, well-established techniques that are well-suited to the digital-computer solution of problems in many areas of science and engineering.

Industrial Automation Technologies CRC Press

The fundamentals and implementation of digital electronics are essential to understanding the design and working of consumer/industrial electronics, communications, embedded systems, computers, security and military equipment. Devices used in applications such as these are constantly decreasing in size and employing more complex technology. It is therefore essential for engineers and students to understand the fundamentals, implementation and application principles of digital electronics, devices and integrated circuits. This is so that they can use the most appropriate and effective technique to suit their technical need. This book provides practical and comprehensive coverage of digital electronics, bringing together information on fundamental theory, operational aspects and

potential applications. With worked problems, examples, and review questions for each chapter, *Digital Electronics* includes: information on number systems, binary codes, digital arithmetic, logic gates and families, and Boolean algebra; an in-depth look at multiplexers, de-multiplexers, devices for arithmetic operations, flip-flops and related devices, counters and registers, and data conversion circuits; up-to-date coverage of recent application fields, such as programmable logic devices, microprocessors, microcontrollers, digital troubleshooting and digital instrumentation. A comprehensive, must-read book on digital electronics for senior undergraduate and graduate students of electrical, electronics and computer engineering, and a valuable reference book for professionals and researchers.

Topics in Algorithmic Graph Theory PHI Learning Pvt. Ltd.

Algorithmic graph theory has been expanding at an extremely rapid rate since the middle of the twentieth century, in parallel with the growth of computer science and the accompanying utilization of computers, where efficient algorithms have been a prime goal. This book presents material on developments on graph algorithms and related concepts that will be of value to both mathematicians and computer scientists, at a level suitable for graduate students, researchers and instructors.

The fifteen expository chapters, written by acknowledged international experts on their subjects, focus on the application of algorithms to solve particular problems. All chapters were carefully edited to enhance readability and standardize the chapter structure as well as the terminology and notation. The editors provide basic background material in graph theory, and a chapter written by the book's Academic Consultant, Martin Charles Golombic (University of Haifa, Israel), provides background material on algorithms as connected with graph theory.

Computer Simulation and Modelling MIT Press

Class-tested and coherent, this textbook teaches classical and web information retrieval, including web search and the

related areas of text classification and text clustering from basic concepts. It gives an up-to-date treatment of all aspects of the design and implementation of systems for gathering, indexing, and searching documents; methods for evaluating systems; and an introduction to the use of machine learning methods on text collections. All the important ideas are explained using examples and figures, making it perfect for introductory courses in information retrieval for advanced undergraduates and graduate students in computer science. Based on feedback from extensive classroom experience, the book has been carefully structured in order to make teaching more natural and effective. Slides and additional exercises (with solutions for lecturers) are also available through the book's supporting website to help course instructors prepare their lectures.

Introduction to Information Retrieval Pearson Education

About the Book: This book *Engineering Mathematics-II* is designed as a self-contained, comprehensive classroom text for the second semester B.E. Classes of Visveswararajah Technological University as per the Revised new Syllabus. The topics included are Differential Calculus, Integral Calculus and Vector Integration, Differential Equations and Laplace Transforms. The book is written in a simple way and is accompanied with explanatory figures. All this make the students enjoy the subject while they learn. Inclusion of selected exercises and problems make the book educational in nature. It shou.

John Wiley & Sons

These notes were first used in an introductory course team taught by the authors at Appalachian

State University to advanced undergraduates and beginning graduates. The text was written with four pedagogical goals in mind: offer a variety of topics in one course, get to the main themes and tools as efficiently as possible, show the relationships between the different topics, and include recent results to convince students that mathematics is a living discipline.

Multirate and Wavelet Signal Processing

Academic Press

A Coherent Systems View of Wireless and Cellular Network Design and Implementation
Written for senior-level undergraduates, first-year graduate students, and junior technical professionals, Introduction to Wireless Systems offers a coherent systems view of the crucial lower layers of today's cellular systems. The authors introduce today's most important propagation issues, modulation techniques, and access schemes, illuminating theory with real-world examples from modern cellular systems. They demonstrate how elements within today's wireless systems interrelate, clarify the trade-offs associated with delivering high-quality service at acceptable cost, and demonstrate how systems are designed and implemented by teams of complementary specialists. Coverage includes
Understanding the challenge of moving information wirelessly between two points
Explaining how system and subsystem designers work together to analyze, plan, and implement optimized wireless systems
Designing for quality reception: using the free-space range equation, and accounting for thermal noise
Understanding terrestrial channels and their impairments, including shadowing and multipath reception
Reusing frequencies to provide service over wide areas to large subscriber bases
Using modulation: frequency efficiency, power efficiency, BER, bandwidth, adjacent-

channel interference, and spread-spectrum modulation
Implementing multiple access methods, including FDMA, TDMA, and CDMA
Designing systems for today's most common forms of traffic—both "bursty" and "streaming"
Maximizing capacity via linear predictive coding and other speech compression techniques
Setting up connections that support reliable communication among users
Introduction to Wireless Systems brings together the theoretical and practical knowledge readers need to participate effectively in the planning, design, or implementation of virtually any wireless system.

Theory of Computer Science CRC Press

Because of its inherent simplicity, graph theory has a wide range of applications in engineering, and in physical sciences. It has of course uses in social sciences, in linguistics and in numerous other areas. In fact, a graph can be used to represent almost any physical situation involving discrete objects and the relationship among them. Now with the solutions to engineering and other problems becoming so complex leading to larger graphs, it is virtually difficult to analyze without the use of computers. This book is recommended in IIT Kharagpur, West Bengal for B.Tech Computer Science, NIT Arunachal Pradesh, NIT Nagaland, NIT Agartala, NIT Silchar, Gauhati University, Dibrugarh University, North Eastern Regional Institute of Management, Assam Engineering College, West Bengal University of Technology (WBUT) for B.Tech, M.Tech Computer Science, University of Burdwan, West Bengal for B.Tech. Computer Science, Jadavpur University, West Bengal for M.Sc. Computer Science, Kalyani College of Engineering, West Bengal for B.Tech. Computer Science. Key Features:

This book provides a rigorous yet informal treatment of graph theory with an emphasis on computational aspects of graph theory and graph-theoretic algorithms. Numerous applications to actual engineering problems are incorporated with software design and optimization topics.

Component-Based Software Engineering Artech House

Introduction to Optimum Design, Third Edition describes an organized approach to engineering design optimization in a rigorous yet simplified manner. It illustrates various concepts and procedures with simple examples and demonstrates their applicability to engineering design problems. Formulation of a design problem as an optimization problem is emphasized and illustrated throughout the text. Excel and MATLAB® are featured as learning and teaching aids. Basic concepts of optimality conditions and numerical methods are described with simple and practical examples, making the material highly teachable and learnable. Includes applications of optimization methods for structural, mechanical, aerospace, and industrial engineering problems
Introduction to MATLAB Optimization Toolbox Practical design examples introduce students to the use of optimization methods early in the book
New example problems throughout the text are enhanced with detailed illustrations
Optimum design with Excel Solver has been expanded into a full chapter
New chapter on several advanced optimum design topics serves the needs of instructors who teach more advanced courses

Automotive Systems Prentice Hall

The modeling and simulation of fluids, solids and other materials with significant coupling and thermal effects is becoming an increasingly important area of study in applied mathematics and engineering. Necessary for such studies is a fundamental understanding of the basic principles of continuum mechanics and thermodynamics. This book is a clear introduction to these principles. It is designed for a one- or two-quarter course for advanced undergraduate and beginning graduate

students in the mathematical and engineering sciences, and is based on over nine years of teaching experience. It is also sufficiently self-contained for use outside a classroom environment. Prerequisites include a basic knowledge of linear algebra, multivariable calculus, differential equations and physics. The authors begin by explaining tensor algebra and calculus in three-dimensional Euclidean space. Using both index and coordinate-free notation, they introduce the basic axioms of continuum mechanics pertaining to mass, force, motion, temperature, energy and entropy, and the concepts of frame-indifference and material constraints. They devote four chapters to different theories of fluids and solids, and, unusually at this level, they consider both isothermal and thermal theories in detail. The book contains a wealth of exercises that support the theory and illustrate various applications. Full solutions to odd-numbered exercises are given at the end of each chapter and a complete solutions manual for all exercises is available to instructors upon request. Each chapter also contains a bibliography with references covering different presentations, further applications and numerical aspects of the theory. Book jacket.

Software-Defined Radio for Engineers John Wiley & Sons

Intended primarily as a textbook for the students of computer science and engineering, electronics and communication engineering, master of computer applications (MCA), and those offering IT courses, the book provides a comprehensive coverage of the subject. Basic elements of communication such as data, signal and channel alongwith their characteristics such as bandwidth, bit internal and bit rate have been explained. Contents related to guided and unguided transmission media, Bluetooth wireless technology, developed for

Personal Area Network (PAN) and issues related to routing covering popular routing algorithms namely RIP, OSPF and BGP, have been introduced in the book. Various aspects of data link control alongwith their application in HDLC network and techniques such as encoding, multiplexing and encryption/decryption are presented in detail. Characteristics and implementation of PSTN, SONET, ATM, LAN, PACKET RADIO network, Cellular telephone network and Satellite network have also been explained. Different aspects of IEEE 802.11 WLAN and congestion control protocols have also been discussed in the book. Key Features • Each chapter is divided into section and subsection to provide flexibility in curriculum design. • The text contains numerous solved examples, and illustrations to bring clarity to the subject and enhance its understanding. • Review questions given at the end of each chapter, are meant to enable the teacher to test student's grasping of the subject.

Additive Manufacturing PHI Learning Pvt. Ltd.

The design and analysis of efficient data structures has long been recognized as a key component of the Computer Science curriculum. Goodrich, Tomassia and Goldwasser's approach to this classic topic is based on the object-oriented paradigm as the framework of choice for the design of data structures. For each ADT presented in the text, the authors provide an associated Java interface. Concrete data structures realizing the ADTs are provided as Java classes implementing the interfaces. The Java code implementing fundamental data structures in this book is organized in a single Java package, net.datastructures. This package forms a coherent library of data structures and algorithms in Java specifically designed for educational purposes in a way that is complimentary with the Java Collections Framework.

Computer Organization and Design Fundamentals CRC Press

The book begins with an overview of automation history and followed by chapters on PLC, DCS, and SCADA -describing how such technologies have become synonymous in process instrumentation and control. The book then introduces the niche of Fieldbuses in process industries. It then goes on to discuss wireless communication in the automation sector and its applications in the industrial arena. The book also discusses theall-pervading IoT and its industrial cousin,IIoT, which is finding increasing applications in process automation and control domain. The last chapter introduces OPC technology which has strongly emerged as a defacto standard for interoperable data exchange between multi-vendor software applications and bridges the divide between heterogeneous automation worlds in a very effective way. Key features: Presents an overall industrial automation scenario as it evolved over the years Discusses the already established PLC, DCS, and SCADA in a thorough and lucid manner and their recent advancements Provides an insight into today's industrial automation field Reviews Fieldbus communication and WSNs in the context of industrial communication Explores IIoT in process automation and control fields Introduces OPC which has already carved out a niche among industrial communication technologies with its seamless connectivity in a heterogeneous automation world Dr. Chanchal Dey is Associate Professor in the Department of Applied Physics, Instrumentation Engineering Section, University of Calcutta. He is a reviewer of IEEE, Elsevier, Springer, Acta Press, Sage, and Taylor & Francis Publishers. He has more than 80 papers in international journals and conference publications. His research interests include intelligent process control using conventional, fuzzy, and neuro-fuzzy techniques. Dr. Sunit Kumar Sen is an ex-professor, Department of Applied Physics, Instrumentation Engineering Section, University of Calcutta. He was a coordinator of two projects sponsored by AICTE and UGC, Government of India. He has published around70 papers in international and national journals and conferences and has published three books - the last one was published by CRC Press in 2014. He is a reviewer of Measurement, Elsevier. His field of interest is new designs of ADCs and DACs.

Basic Electrical and Electronics

Engineering: S. Chand Publishing

Working Drawings Handbook focuses on the principles, styles, methodologies, and approaches involved in drawings. The book first takes a look at the structure of information, types of drawing, and draftsmanship. Discussions focus on dimensioning, drawing conventions, techniques, materials, drawing reproduction, location drawing, component and sub-component drawings, assembly drawing, schedule, pictorial views, and structure of working drawings. The manuscript then ponders on working drawing management and other methods. Topics include planning the set, drawing register, drawing office programming, and introducing new methods. Building elements and external features, conventions for doors and windows, symbols indicating materials, electrical, telecommunications, and fire symbols, and non-active lines and symbols are also discussed. The book is a fine reference for draftsmen and researchers interested in studying the elements of drawing.

A First Course in Continuum Mechanics Elsevier
Computer Simulation and Modelling John Wiley & Sons Incorporated

DATA COMMUNICATION AND COMPUTER NETWORKS Elsevier
The corporate market is now embracing free, "open source" software like never before, as evidenced by the recent success of the technologies underlying LAMP (Linux, Apache, MySQL, and PHP). Each is the result of a publicly collaborative process among numerous developers who volunteer their time and energy to create better software. The truth is, however, that the overwhelming majority of free software projects fail. To help you beat the odds, O'Reilly has put together Producing Open Source Software, a guide that recommends tried and true steps to help free software developers work together toward a common

goal. Not just for developers who are considering starting their own free software project, this book will also help those who want to participate in the process at any level. The book tackles this very complex topic by distilling it down into easily understandable parts. Starting with the basics of project management, it details specific tools used in free software projects, including version control, IRC, bug tracking, and Wikis. Author Karl Fogel, known for his work on CVS and Subversion, offers practical advice on how to set up and use a range of tools in combination with open mailing lists and archives. He also provides several chapters on the essentials of recruiting and motivating developers, as well as how to gain much-needed publicity for your project. While managing a team of enthusiastic developers -- most of whom you've never even met -- can be challenging, it can also be fun. Producing Open Source Software takes this into account, too, as it speaks of the sheer pleasure to be had from working with a motivated team of free software developers.

Introduction to Wireless Systems Springer Science & Business Media

A groundbreaking and comprehensive reference that's been a bestseller since 1970, this new edition provides a broad mathematical survey and covers a full range of topics from the very basic to the advanced. For the first time, a personal tutor CD-ROM is included.

Foundations of Software Technology and Theoretical Computer Science Addison-Wesley Professional

While writing the book, we have continuously kept in mind the examination requirements of the students preparing for U.P.S.C. (Engg. Services) and A.M.I.E. (I) examinations. In order to make this volume more useful for them, complete solutions of their examination papers up to 1975 have also been included. Every care has been taken to make this treatise as self-explanatory as possible. The subject matter has been amply illustrated by incorporating a good number of solved, unsolved and well graded examples of almost every variety.

Engineering Mathematics Routledge

Studying engineering, whether it is mechanical, electrical or civil relies heavily on an understanding of mathematics. This new textbook clearly demonstrates the relevance of mathematical principles and shows how to apply them to solve real-life engineering problems. It deliberately starts at an elementary level so that students who are starting from a low knowledge base will be able to quickly get up to the level required. Students who have not studied mathematics for some time will find this an excellent refresher. Each chapter starts with the basics before gently increasing in complexity. A full outline of essential definitions, formulae, laws and procedures are introduced before real world situations, practicals and problem solving demonstrate how the theory is applied. Focusing on learning through practice, it contains examples, supported by 1,600 worked problems and 3,000 further problems contained within exercises throughout the text. In addition, 34 revision tests are included at regular intervals. An interactive companion website is also provided containing 2,750 further problems with worked solutions and instructor materials