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Engineering Library

Acquisitions List

Summer 2011

CHEMICAL ENGINEERING AND RELATED SUBJECTS

Nag, Ahindra. 2010. Biosystems engineering. McGraw-Hill, New York. 660.6 N13.

Maximize productivity while minimizing environmental impact. Develop sustainable products, energy sources, and processes using the concepts and methods contained in this interdisciplinary resource. *Biosystems Engineering* discusses how to effectively merge solid design techniques with biology and the applied sciences. Featuring chapters by experts in each field, this authoritative guide explains how to analyze genetic data, design ecosystem models, implement conservation strategies, harness biofuels, and ensure food safety. Full coverage of transgenic wood production, package engineering, supercritical fluid extraction, and agricultural land management is included.

Rouessac, Francis. 2007. 2nd ed. Chemical analysis: modern instrumentation methods and techniques. Wiley, Hoboken, N.J. 543 R75

"An essential introduction to a wide range of analytical and instrumentation techniques that have been developed and improved in recent years." (*International Journal of Environmental and Analytical Chemistry*, 2008). Completely revised and updated, *Chemical Analysis: Second Edition* is an essential introduction to a wide range of analytical techniques and instruments. Assuming little in the way of prior knowledge, this text carefully guides the reader through the more widely used and important techniques, whilst avoiding excessive technical detail.

CIVIL ENGINEERING AND RELATED SUBJECTS

Benton, W.C.Jr. & McHenry, Linda F. 2010. Construction purchasing & supply chain management. McGraw-Hill, New York. 692 B44

Develop a highly efficient construction supply chain management (CSCM) solution that decreases risk and increases profitability. This authoritative volume provides proven strategies for the lean construction approach, including just-in-time purchasing, supplier evaluation, subcontractor selection, subcontractor relationship management, equipment acquisition, information sharing, and project quality management. *Construction Purchasing and Supply Chain Management* explains how to achieve maximum integration with upstream and downstream supply chain members using the latest technologies. You will be able to establish a strategic CSCM framework to meet the budgetary and scheduling goals of any project. This comprehensive, step-by-step guide to

CSCM is useful for project owners, design engineers, architects, prime contractors, subcontractors, suppliers, and construction managers involved in construction projects throughout the world.

Brockenbrough, Roger L.ed. 2009. 3rd ed. Highway engineering handbook: building and rehabilitating the infrastructure. McGraw-Hill, New York. 625.70973 H53

A Comprehensive Guide to Highway Engineering--Fully Updated with the Latest AASHTO Codes. Maintaining and improving the nation's infrastructure is one of the most important challenges facing the United States, with the primary focus on highways and bridges. The Third Edition of Highway Engineering Handbook provides broad coverage of the information, standards, and techniques required for effective and cost-conscious contemporary highway design, maintenance, replacement, and repair, updated to reflect the latest codes, standards, and policies of the American Association of State Highway and Transportation Officials (AASHTO), as well as new engineering developments, features new information on: The most current load and resistance factor design (LRFD) methods for bridges, the latest design techniques and improvements in materials for pipes, the developments in sound barriers and lighting requirements Improvements in safety systems.

Gould, Frederick E. 2009. 3rd ed. Construction project management. Pearson Prentice Hall, Upper Saddle River, N.J. 690 G73

Construction Project Management, Third Edition provides readers with the "big picture" of the construction management process, giving a perspective as to how the construction industry functions in relation to the national economy and in the public's eye. This book focuses on the collaborative effort required to complete any public or private construction project, providing the construction professional with the skills needed to work with and alongside the owner representative, the designer, and within the public's eye. It explains in detail the project elements and environment, and the responsibilities of the varied project professionals, and follows in detail the chronology of a project.

Kim, Richard ed. 2009. Modeling of asphalt concrete. ASCE Press, New York. 625.85 M72.

Written by distinguished experts from countries around the world, *Modeling of Asphalt Concrete* presents in-depth coverage of the current materials, methods, and models used for asphalt pavements. Included is state-of-the-art information on fundamental material properties and mechanisms affecting the performance of asphalt concrete, new rheological testing and analysis techniques, constitutive models, and performance prediction methodologies for asphalt concrete and asphalt pavements. Emphasis is placed on the modeling of asphalt mixes for specific geographic/climatic requirements.

Lambeck, Richard & Bachemuller, John. 2009. Urban construction project management. McGraw-Hill, New York. 690.0684 L17

Filled with hands-on advice from two seasoned project management experts, "Urban Construction Project Management" provides a wealth of proven solutions to the common problems of construction management in urban environments. The book includes cutting-edge information about working on small sites, public safety, the permit process, coordinating with utility companies, dealing with adjacent properties, and many other topics. This indispensable construction management tool uses numerous illustrations, photographs, charts, tables, and diagrams to clarify the critical issues involved in today's urban construction projects. "Urban Construction Project Management" features: Practical, step-by-step methods for meeting the unique challenges of today's complex urban construction projects Checklists and forms-such as Request for Information (RFI) logs, meeting minutes, and contact lists-that enable readers to put information into practice quickly and easily A wide range of visual materials, including illustrations, photographs, schedules, charts, tables, and diagrams

COMPUTER ENGINEERING AND RELATED SUBJECTS

Collberg, Christian. 2010. Surreptitious software: obfuscation, watermarking, and tamperproofing for software protection. Addison-Wesley, Upper Saddle River, N.J. 005.8 C68

The last decade has seen significant progress in the development of techniques for resisting software piracy and tampering. These techniques are indispensable for software developers seeking to protect vital intellectual property. **Surreptitious Software** is the first authoritative, comprehensive resource for researchers, developers, and students who want to understand these approaches, the level of security they afford, and the performance penalty they incur. Christian Collberg and Jasvir Nagra bring together techniques drawn from related areas of computer science, including cryptography, steganography, watermarking, software metrics, reverse engineering, and compiler optimization. Using extensive sample code, they show readers how to implement protection schemes ranging from code obfuscation and software fingerprinting to tamperproofing and birthmarking, and discuss the theoretical and practical limitations of these techniques.

Linder, Wilfried. 2009. 3rd ed. Digital photogrammetry: a practical course. Springer, New York. 526.982 L64.

The third edition is an "all-in-one" combination of basic theory and practical exercises with software and data included on a CD-ROM. The main part of the book contains several tutorials. In increasing complexity, accompanied by texts explaining further theory, the reader can proceed step by step through the particular working parts. All intermediate as well as the final results are discussed with reference to accuracy and error handling, and included on the CD-ROM to provide controls. Most of the standard work in Digital Photogrammetry is shown and trained for example scanning, image orientation, mono and stereo plotting, aerial triangulation measurement (manual and automatic), block adjustment, automatic creation of surface models via image matching, creation of ortho images and mosaics, and others. Not only standard situations are dealt with but also more complex ones, such as unknown camera data, extreme relief or areas with very low contrast. Examples of both aerial and close-range photogrammetry present the power of these type of measurement techniques.

Malik, D.S. 2009. Java programming: guided learning with early objects. Cengage Learning, Boston, Mass. 005.133 M29

This innovative new text, intended for the beginning programmer, introduces objects early but gently and includes a variety of examples and exercises intended to support each new concept. With a clear emphasis on self-study and the student learning experience, Malik and Burton employ a straightforward writing style that parallels the learning method of the contemporary CS1 student. Before a key topic is introduced, the student learns why the concept is important, and then sees examples. Java Programming: Guided Programming with Early Objects is an invaluable resource for all students, both in and out of the classroom.

Nof, Shimon ed. 2009. Springer handbook of automation. Springer, New York. 629.89263 Sp83

Automation is undergoing a major transformation in scope and dimension and plays an increasingly important role in the global economy and in our daily lives. Engineers combine automated devices with mathematical and organizational tools to create complex systems for a rapidly expanding range of applications and human activities. The **Springer Handbook of Automation** incorporates these new developments and presents a widespread and well-structured conglomeration of new emerging application areas of automation. Besides manufacturing as a primary application of automation, the handbook provides the most advanced, comprehensive, and balanced coverage of the technical and engineering aspects of automation. It covers all the major cutting-edge

technologies of production automation and material handling, and contains new application areas such as medical systems and health, transportation, security and maintenance, service, construction and retail as well as production or logistics.

Ratner, Peter. 2009. 3rd ed. 3-D human modeling and animation. Wiley, Hoboken, N.J.
006.696 R18

Thanks to today's remarkable technology, artists can create and animate realistic, three-dimensional human figures that were not possible just a few years ago. This easy-to-follow book guides you through all the necessary steps to adapt your own artistic skill in figure drawing, painting, and sculpture to this exciting digital canvas. *3-D Human Modeling and Animation, Third Edition* starts you off with simple modeling, then prepares you for more advanced techniques for creating human characters. After a brief overview of human anatomy, you'll delve into the basic principles of proportion and structure, along with the different body parts. Exploring human modeling, texturing, rigging, and lighting leads you to more advanced techniques for digital figure animation.

ELECTRICAL/ELECTRONICS & COMMUNICATION ENGINEERING AND RELATED SUBJECTS

Carlson, A. Bruce. 2010. 5th ed. Communication systems: an introduction to signals and noise in electrical communication. McGraw-Hill, Boston. 621.38043 C19

This exciting revision of *Communication Systems*, a classic text in the communications field, presents an introduction to electrical communication systems, including analysis methods, design principles, and hardware considerations. The fifth edition has been updated to reflect current technology covering both analog and digital communication in this ever-evolving field. Conceptual/descriptive/thought questions have been added throughout the book as well as MATLAB® questions and lecture Powerpoint files on the website. The text covers both analog and digital communications. It features worked examples and exercises for students to solve within chapters, helping them to master new concepts as they are introduced.

Koenig, David M. 2009. Practical control engineering: a guide for engineers, managers, and practitioners. McGraw-Hill, New York. 629.8 K81

Understand the day-to-day procedures of today's control engineer with the pragmatic insights and techniques contained in this unique resource. Written in clear, concise language, *Practical Control Engineering* shows, step-by-step, how engineers simulate real-world phenomena using dynamic models and algorithms. Learn how to handle single and multiple-staged systems, implement error-free feedback control, eliminate anomalies, and work in the frequency and discrete-time domains. Extensive appendices cover basic calculus, differential equations, vector math, Laplace and Z-transforms, and Matlab basics.

Narayana Rao, Nannapaneni. 2009. Fundamentals of electromagnetics for electrical and computer engineering. Pearson Prentice Hall, Upper Saddle River, N.J. 621.3 N16

Dr. N. Narayana Rao has designed this compact treatise in electromagnetics to fully reflect the evolution of technologies in both electrical and computer engineering. Dr. Rao develops most key concepts through the use of the simpler Cartesian coordinate system, while utilizing other coordinate systems wherever necessary to ensure that readers master the physical concepts and mathematical tools they need to understand electromagnetics. Topics covered in this book include: uniform plane wave propagation; material media and their interaction with uniform plane wave fields; essentials of transmission-line analysis (both frequency- and time-domain); metallic

waveguides; and Hertzian dipole field solutions. Material on cylindrical and spherical coordinate systems is presented in appendices, where it can be studied whenever relevant or convenient. Worked examples are presented throughout to illuminate (and in some cases extend) key concepts; each chapter also contains a summary and review questions. Appropriate for anyone interested in learning more about electromagnetics.

INDUSTRIAL ENGINEERING AND RELATED SUBJECTS

Wellington, Pat. 2009. Effective team leadership for engineers. Institute of Engineering, Stevenage, U.K. 658.1002462 W46

An essential guide for engineers who are new to the role of leading a team. Packed with practical information, advice and case studies, this book not only presents you with the insights to get your team rapidly up to speed and working to their full potential, but also shows how to problem solve, and keep the team on track through turbulent times.

MECHANICAL ENGINEERING AND RELATED SUBJECTS

Silowash, Brian. 2010. Piping systems manual. McGraw-Hill, New York. 621.8672 Si36

Filled with examples drawn from years of design and field experience, this practical guide offers comprehensive information on piping installation, repair, and rehabilitation. All of the latest codes, standards, and specifications are included. *Piping Systems Manual* is a hands-on design and engineering resource that explains the reasons behind the designs. You will get full coverage of materials, components, calculations, specifications, safety, and much more. Hundreds of detailed illustrations make it easy to understand the best practices presented in the book. *Piping Systems Manual* covers: ASME B31 piping codes, Specifications and standards, Materials of construction, Fittings, Valves and appurtenances, Pipe supports, Drafting practice, Pressure drop calculations, Piping project anatomy, Field work and start-up, What goes wrong, Special services, Infrastructure.

ENGINEERING MATHEMATICS

Rosenkrantz, Walter A. 2009. Introduction to probability and statistics for science, engineering, and finance. CRC Press, Boca Raton. 519.5 R72

Integrating interesting and widely used concepts of financial engineering into traditional statistics courses, *Introduction to Probability and Statistics for Science, Engineering, and Finance* illustrates the role and scope of statistics and probability in various fields. The text first introduces the basics needed to understand and create tables and graphs produced by standard statistical software packages, such as Minitab, SAS, and JMP. It then takes students through the traditional topics of a first course in statistics. Coverage includes applications of standard statistical concepts and methods to the analysis and interpretation of financial data, an introduction to modern portfolio theory, mean-standard deviation diagram of a collection of portfolios, the Black-Scholes option pricing formula, testing the efficient market hypothesis by applying the Shapiro-Wilk test to stock market data, and computing a stock's beta via simple linear regression.

ENGINEERING ETHICS

Martin, Mike W. 2010. 2nd ed. Introduction to engineering ethics. McGraw-Hill Higher Education, Boston. 174.962 M36

Technology has a pervasive and profound effect on the contemporary world, and engineers play a central role in all aspects of technological development. To hold paramount the safety, health, and welfare of the public, engineers must be morally committed and equipped to grapple with ethical dilemmas they confront. *Introduction to Ethics in Engineering* provides an introduction to the issues in engineering ethics. It places those issues within a philosophical framework, and it seeks to exhibit their social importance and intellectual challenge. The goal is to stimulate reasoning and to provide the conceptual tools necessary for responsible decision making.

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