

Technology Engineering Book

During the past few years, groups like the President's Council of Advisors on Science and Technology, Center for Education have been placing great emphasis on the significance of STEM (science, technology, engineering, and math) education. In brief, the US is seen as falling behind the rest of the world in science and technology education. In response, the curricula have been revised in many educational institutions and school districts across the country. It is clear that for STEM to be successful, other community organizations, most particularly libraries, need to be closely involved in the process. Library staff realize the importance of getting involved in STEM education, but many have difficulty finding comprehensive information that will help them plan and successfully implement STEM direction in their organization. This book is designed to meet that need. It is timely and relevant. How to STEM: Science, Technology, Engineering, and Math Education in Libraries is by and for libraries who are involved in contributing efforts into advancing these subjects. It is organized in 9 parts including funding, grant writing, community partnerships, outreach, research, and examples of specific programming activities. Authors are drawn from the professional staffs of educational institutions, libraries, and non-profit

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organizations such as science museums. The book contains eight parts, each emphasizing a different aspect of how to succeed with STEM. Part 1 emphasizes how hands-on activities that are both fun and educational can be used to further STEM awareness. Parts 2 and 3 contain chapters on the uniting of STEM with Information Literacy. Innovative collection development ideas are discussed in Part 4 and Part 5 focuses on research and publishing. Outreach is the theme of Part 6 and the programs described in these chapters offer an array of ways to connect with students of all ages. The final section of *How to STEM: Science, Technology, Engineering, and Math Education in Libraries* addresses the funding of these programs. Librarians of all types will be pleased to discover easy-to-implement suggestions for collaborative efforts, many rich and diverse programming ideas, strategies for improving reference services and library instruction to speakers of English as a second language, marketing and promotional tips designed to welcome multicultural patrons into the library, and much more.

An overview of engineering systems that describes the new challenges posed for twenty-first-century engineers by today's highly complex sociotechnical systems. Engineering, for much of the twentieth century, was mainly about artifacts and inventions. Now, it's increasingly about complex systems. As the airplane taxis to

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the gate, you access the Internet and check email with your PDA, linking the communication and transportation systems. At home, you recharge your plug-in hybrid vehicle, linking transportation to the electricity grid. Today's large-scale, highly complex sociotechnical systems converge, interact, and depend on each other in ways engineers of old could barely have imagined. As scale, scope, and complexity increase, engineers consider technical and social issues together in a highly integrated way as they design flexible, adaptable, robust systems that can be easily modified and reconfigured to satisfy changing requirements and new technological opportunities. Engineering Systems offers a comprehensive examination of such systems and the associated emerging field of study. Through scholarly discussion, concrete examples, and history, the authors consider the engineer's changing role, new ways to model and analyze these systems, the impacts on engineering education, and the future challenges of meeting human needs through the technologically enabled systems of today and tomorrow.

The Handbook Philosophy of Technology and Engineering Sciences addresses numerous issues in the emerging field of the philosophy of those sciences that are involved in the technological process of designing, developing and making of new technical artifacts and systems. These issues include the nature of design,

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of technological knowledge, and of technical artifacts, as well as the toolbox of engineers. Most of these have thus far not been analyzed in general philosophy of science, which has traditionally but inadequately regarded technology as mere applied science and focused on physics, biology, mathematics and the social sciences. • First comprehensive philosophical handbook on technology and the engineering sciences • Unparalleled in scope including explorative articles • In depth discussion of technical artifacts and their ontology • Provides extensive analysis of the nature of engineering design • Focuses in detail on the role of models in technology

Technology is a process and a body of knowledge as much as a collection of artifacts. Biology is no different—and we are just beginning to comprehend the challenges inherent in the next stage of biology as a human technology. It is this critical moment, with its wide-ranging implications, that Robert Carlson considers in *Biology Is Technology*. He offers a uniquely informed perspective on the endeavors that contribute to current progress in this area—the science of biological systems and the technology used to manipulate them. In a number of case studies, Carlson demonstrates that the development of new mathematical, computational, and laboratory tools will facilitate the engineering of biological artifacts—up to and including organisms and ecosystems. Exploring how this will

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happen, with reference to past technological advances, he explains how objects are constructed virtually, tested using sophisticated mathematical models, and finally constructed in the real world. Such rapid increases in the power, availability, and application of biotechnology raise obvious questions about who gets to use it, and to what end. Carlson's thoughtful analysis offers rare insight into our choices about how to develop biological technologies and how these choices will determine the pace and effectiveness of innovation as a public good. This book explores the innovative and research methods of the teaching-learning process in Engineering field. It focuses on the use of technology in the field of education. It also provides a platform to academicians and educationalists to share their ideas and best practices. The book includes specific pedagogy used in engineering education. It offers case studies and classroom practices which also include those used in distance mode and during the COVID-19 pandemic. It provides comparisons of national and international accreditation bodies, directions on cost-effective technology, and it discusses advanced technologies such as VR and augmented reality used in education. This book is intended for research scholars who are pursuing their masters and doctoral studies in the engineering education field as well as teachers who teach undergraduate and postgraduate courses to engineering students.

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This groundbreaking volume covers the significant advantages of wave technologies in the development of innovative machine building where high technologies with appreciable economic effect are applied. These technologies cover many industries, including the oil-and-gas industry, refining and other chemical processing, petrochemical industry, production of new materials, composite and nano-composites including, construction equipment, environmental protection, pharmacology, power generation, and many others. The technological problem of grinding, fine-scale grinding and activation of solid particles (dry blends) is disclosed. This task is common for the production of new materials across these various industries. At present in this sphere the traditional methods have reached their limits and in some cases are economically ineffective from both scientific and practical points of view. The authors have detailed, through their extensive groundbreaking research, how these new methods, based on wave technology, can be used to create new, more efficient and less expensive applications and materials for industry. From increasing oil recovery to building stronger machines more efficiently and creating more productive membrane separation devices, wave technology can be used as a fertile ground for product innovation and more efficient methods of production across a variety of industries. This book is the only one of its kind in the world

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and offers a unique and invaluable glance into this sophisticated and complicated scientific area that is only now being more fully utilized for its valuable benefits. *A Century of Innovation: The Engineering that Transformed Our Lives* is a full-color coffee table book that details the greatest achievements of 20th-century engineering. Each chapter details one specific engineering "feat" with a discussion of the discovery's impact on society and descriptions and illustrations of how that discovery "works."

"This book discusses increasing the participation of women in science, engineering and technology professions, educating the stakeholders - citizens, scholars, educators, managers and policy makers - how to be part of the solution"--Provided by publisher.

"This book examines the latest research advances and technological developments for wood material as an engineering product and the innovation it provides for environmental friendly materials"--Provided by publisher.

For introductory courses in Engineering Technologies *Introduction to Engineering Technology*, 8th Edition, explains the responsibilities of technicians and technologists in the dynamic world of engineering. The basic tools of engineering technology, including problem solving, calculator skills, conversion of units, geometry, computer skills, and technical reporting, are explained. Mathematical concepts are presented in a moderately-paced manner, including practical, worked-out examples for the engineering calculator. In addition to developing students' skills

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in algebra, trigonometry, and geometry, this popular text also helps them to understand the broad spectrum of today's technologies. The full text downloaded to your computer With eBooks you can: search for key concepts, words and phrases make highlights and notes as you study share your notes with friends eBooks are downloaded to your computer and accessible either offline through the Bookshelf (available as a free download), available online and also via the iPad and Android apps. Upon purchase, you will receive via email the code and instructions on how to access this product. Time limit The eBooks products do not have an expiry date. You will continue to access your digital ebook products whilst you have your Bookshelf installed.

Engineering is what brings machines to life. Little learners can discover more about engineering at home by reading the simple explanations and doing the beautifully illustrated activities on each page. Start a lifelong passion for STEM subjects and inspire children to, one day, contribute an invention of their own to the world.

The aim of this book is to introduce students to the basic electrical and electronic principles needed by technicians in fields such as electrical engineering, electronics and telecommunications. The emphasis is on the practical aspects of the subject, and the author has followed his usual successful formula, incorporating many worked examples and problems (answers supplied) into the learning process. Electrical Principles and Technology for Engineering is John Bird's core text for Further Education courses at BTEC levels N11 and N111 and Advanced GNVQ. It is also designed to provide a comprehensive introduction for students on a variety of City & Guilds courses, and any students or technicians requiring a sound grounding in Electrical Principles and Electrical Power Technology.

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A woman is operated on while she's awake... A plane runs out of gas while circling an airport for 30 minutes... A passenger liner is mistaken for an enemy fighter and shot down... A company invests in a new system that will cost them money... What do these failures have in common? How can we prevent them from happening again? Offering a critical perspective on problems with human-technical systems, *Stories of Modern Technology Failures and Cognitive Engineering Successes* explores the significant efforts of those who have made a positive difference. The book analyzes a variety of cognitive engineering applications, including training, design, military, transportation, communications, medicine, and emergency response in the nuclear industry. Real world examples include— Designing a military training program that improved the detection rates of land mines Redesigning a monitor to help anesthesiologists predict dosages more effectively Implementing new protocols to improve the workflow and safety of a nuclear power plant The book's focus on cognitive engineering solutions emphasizes methodology such as knowledge elicitation, laboratory studies, naturalistic observation, usability, and modeling. It addresses highly complex systems as well as traditional human-machine interfaces. This book demonstrates how cognitive engineers— Identify and address cognitive problems Develop, test, and implement solutions Consider social, cultural, political, and economic factors Develop criteria to measure the success of a solution

The "laws" that govern our physical universe come in many guises—as principles, theorems, canons, equations, axioms, models, and so forth. They may be empirical, statistical, or theoretical, their names may reflect the person who first expressed them, the person who publicized them, or they might simply describe a phenomenon. However they may be named,

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the discovery and application of physical laws have formed the backbone of the sciences for 3,000 years. They exist by thousands. *Laws and Models: Science, Engineering, and Technology*-the fruit of almost 40 years of collection and research-compiles more than 1,200 of the laws and models most frequently encountered and used by engineers and technologists. The result is a collection as fascinating as it is useful. Each entry consists of a statement of the law or model, its date of origin, a one-line biography of the people involved in its formulation, sources of information about the law, and cross-references. Illustrated and highly readable, this book offers a unique presentation of the vast and rich collection of laws that rule our universe. Everyone with an interest in the inner workings of nature-from engineers to students, from teachers to journalists-will find *Laws and Models* to be not only a handy reference, but an engaging volume to read and browse.

With a visual approach to the STEM subjects, this book makes science easy to understand and shows kids how things work. From molecules and magnetism to rockets and radio waves, *How to Be Good at Science, Technology, and Engineering* makes complex scientific concepts simple to grasp. Dynamic, visual explanations break down even the trickiest of topics into small steps. Find out how a hot-air balloon rises, how erosion flattens mountains, how light waves zip through space, and how the human eye sees colors. Cool illustrations show the application of science in the real world: see how microchips, tractors, and suspension bridges work. "Try it out" boxes suggest ways children can see the science for themselves. Hands-on projects feature fun experiments to try at home or school: polish up old coins in vinegar, make an erupting volcano with baking soda, learn about different types of solutions, and more. With STEM (science, technology, engineering, and math) subjects ever more important in today's

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technological world, here is the perfect book to inspire and educate kids and prepare them for the future. All core curriculum areas of science are covered, including physics, biology, chemistry, earth science, and space science.

This lab workbook is designed for use with the Foundations of Engineering & Technology textbook. The chapters in the workbook correspond to those in the textbook and should be completed after reading the appropriate textbook chapter. Each chapter of the workbook reviews the material found in the textbook chapters to enhance your understanding of textbook content. The various types of questions include matching, true or false, multiple choice, fill-in-the-blank, and short answer. The lab workbook chapters also contain activities related to textbook content. The activities range from content reinforcement to real-world application, including design projects and broader modular activities. Reading Foundations of Engineering & Technology and using this lab workbook will help you acquire a base of knowledge related to the principles of technology and engineering systems, as well as the design and application of each. Completing the questions and activities for each chapter will help you master the technical knowledge presented in the textbook.

Basic Engineering Technology covers various topics related to engineering, from safety procedures and movement of loads to measurement and dimensional control. Marking out, workholding, and toolholding are also discussed, along with joining, assembly, and dismantling. The interpretation of technical drawings, specifications, and data is considered as well. Comprised of 10 chapters, this book begins with a historical overview of the development of the engineering industry, followed by a discussion on the academic qualifications and training of the various categories of technical personnel employed in the industry. The reader is

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then introduced to safe practices observed in the engineering industry, with emphasis on health and safety legislation, causes of accidents, and accident prevention. Subsequent chapters focus on safety considerations in the movement of loads; measurement and control of dimensional properties; advantages and disadvantages of marking out; workholding and toolholding applications; and assembly and dismantling. This monograph is intended for undergraduate students and those enrolled in training centers and in industrial apprentice training schemes.

This book is a printed edition of the Special Issue "Gender and STEM: Understanding Segregation in Science, Technology, Engineering and Mathematics" that was published in Social Sciences

Make 25 fantastic fliers! You can create a sky-full of fabulous-looking paper planes, from old-time gliders to cutting-edge jets, that soar, swoop, sail and dive. The projects include fascinating background information on every model.

SI Units in Engineering and Technology focuses on the use of the International System of Units-Systeme International d'Unités (SI). The publication first elaborates on the SI, derivation of important engineering units, and derived SI units in science and engineering. Discussions focus on applied mechanics in mechanical engineering, electrical and magnetic units, stress and pressure, work and energy, power and force, and magnitude of SI units. The text then examines SI units conversion tables and engineering data in SI units. Tables include details on the sectional properties of metals in SI units, physical properties of important molded plastics, important physical constants expressed in SI units, and temperature, area, volume, and mass conversion. Tables that show the mathematical constants, standard values expressed in SI

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units, and Tex count conversion are also presented. The publication is a dependable source of data for researchers interested in the use of the International System of Units-Systeme International d'Unités.

The acronym “STEM” stands for (S)cience, (T)echnology, (E)ngineering, and (M)ath. These subjects are closely related to one another and are sometimes overlooked as critical subjects in education, often dismissed by students and teachers after primary education is completed. However, the need for these subjects in our society is crucial. The aim of this book is to pique the interest of children in these areas of study, stress the importance of these subjects, and help encourage children who are interested to continue within these fields as they grow and learn. br> Whether it's through marvelous mazes, puzzles, testing, quizzes, and other fun activities, this book introduces children to the inner-working of the world around them and might even, one day, inspire them to contribute an invention or a theory of their own.

Food Process Engineering and Technology, Third Edition combines scientific depth with practical usefulness, creating a tool for graduate students and practicing food engineers, technologists and researchers looking for the latest information on transformation and preservation processes and process control and plant hygiene topics. This fully updated edition provides recent research and developments in the area, features sections on elements of food plant design, an introductory section on the elements of classical fluid mechanics, a section on non-thermal processes, and recent technologies, such as freeze concentration, osmotic dehydration, and active packaging that are discussed in detail. Provides a strong emphasis on the relationship between engineering and product quality/safety Considers cost and environmental factors Presents a fully updated, adequate review of recent research and

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developments in the area Includes a new, full chapter on elements of food plant design Covers recent technologies, such as freeze concentration, osmotic dehydration, and active packaging that are discussed in detail

This book contains comprehensive reviews of different technologies to harness lattice mismatch in semiconductor heterostructures and their applications in electronic and optoelectronic devices. While the book is a bit focused on metamorphic epitaxial growth, it also includes other methods like compliant substrate, selective area growth, wafer bonding, heterostructure nanowires, and more. Basic knowledge on dislocations in semiconductors and innovative methods to eliminate threading dislocations are provided, and successful device applications are reviewed. It covers a variety of important semiconductor materials like SiGe, III-V including GaN and nano-wires; epitaxial methods like molecular beam epitaxy and metal organic vapor phase epitaxy; and devices like transistors and lasers etc.

Bicycle Engineering and Technology is a primer and technical introduction for anyone interested in bicycles, bicycling and the bicycle industry. With insight into how bicycles are made and operated, the book covers the engineering materials used for their manufacture and the technicalities of riding. It also discusses ways in which the enthusiast may wish to get involved in the business of working with these fantastic machines, which are now being aided with electrical power. The bicycle is a significant factor in transportation around the world and is playing an increasingly crucial role in transport policy as we collectively become more environmentally conscious. To celebrate the importance of the bicycle on the world stage, a brief history is included along with a detailed timeline showing the development of the bicycle with major world events. Previous knowledge of engineering or technology is not required to

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enjoy this text, as all technical terms are explained and a full glossary and lists of abbreviations are included. Whether you are a bicycling enthusiast, racer, student or bicycle professional, you will surely want to read it and keep it on your shelf as a handy reference.

The Oxford English for Careers series is ideal for pre-work students, who will need to use English in work situations. Each book teaches English in context, so students practise the language and skills they need for the job in real work situations. The series supports teachers in vocational teaching situations, providing

Particle Technology and Engineering presents the basic knowledge and fundamental concepts that are needed by engineers dealing with particles and powders. The book provides a comprehensive reference and introduction to the topic, ranging from single particle characterization to bulk powder properties, from particle-particle interaction to particle-fluid interaction, from fundamental mechanics to advanced computational mechanics for particle and powder systems. The content focuses on fundamental concepts, mechanistic analysis and computational approaches. The first six chapters present basic information on properties of single particles and powder systems and their characterisation (covering the fundamental characteristics of bulk solids (powders) and building an understanding of density, surface area, porosity, and flow), as well as particle-fluid interactions, gas-solid and liquid-solid systems, with applications in fluidization and pneumatic conveying. The last four chapters have an emphasis on the mechanics of particle and powder systems, including the mechanical behaviour of powder systems during storage and flow, contact mechanics of particles, discrete element methods for modelling particle systems, and finite element methods for analysing powder systems. This thorough guide is beneficial to undergraduates in chemical and other types of

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engineering, to chemical and process engineers in industry, and early stage researchers. It also provides a reference to experienced researchers on mathematical and mechanistic analysis of particulate systems, and on advanced computational methods. Provides a simple introduction to core topics in particle technology: characterisation of particles and powders: interaction between particles, gases and liquids; and some useful examples of gas-solid and liquid-solid systems Introduces the principles and applications of two useful computational approaches: discrete element modelling and finite element modelling Enables engineers to build their knowledge and skills and to enhance their mechanistic understanding of particulate systems

Clinical Engineering: A Handbook for Clinical and Biomedical Engineers, Second Edition, helps professionals and students in clinical engineering successfully deploy medical technologies. The book provides a broad reference to the core elements of the subject, drawing from a range of experienced authors. In addition to engineering skills, clinical engineers must be able to work with both patients and a range of professional staff, including technicians, clinicians and equipment manufacturers. This book will not only help users keep up-to-date on the fast-moving scientific and medical research in the field, but also help them develop laboratory, design, workshop and management skills. The updated edition features the latest fundamentals of medical technology integration, patient safety, risk assessment and assistive technology. Provides engineers in core medical disciplines and related fields with the skills and knowledge to successfully collaborate on the development of medical devices, via approved procedures and standards Covers US and EU standards (FDA and MDD, respectively, plus related ISO requirements) Includes information that is backed up with real-life clinical

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examples, case studies, and separate tutorials for training and class use Completely updated to include new standards and regulations, as well as new case studies and illustrations We have long recognized technology as a driving force behind much historical and cultural change. The invention of the printing press initiated the Reformation. The development of the compass ushered in the Age of Exploration and the discovery of the New World. The cotton gin created the conditions that led to the Civil War. Now, in *Beyond Engineering*, science writer Robert Pool turns the question around to examine how society shapes technology. Drawing on such disparate fields as history, economics, risk analysis, management science, sociology, and psychology, Pool illuminates the complex, often fascinating interplay between machines and society, in a book that will revolutionize how we think about technology. We tend to think that reason guides technological development, that engineering expertise alone determines the final form an invention takes. But if you look closely enough at the history of any invention, says Pool, you will find that factors unrelated to engineering seem to have an almost equal impact. In his wide-ranging volume, he traces developments in nuclear energy, automobiles, light bulbs, commercial electricity, and personal computers, to reveal that the ultimate shape of a technology often has as much to do with outside and unforeseen forces. For instance, Pool explores the reasons why steam-powered cars lost out to internal combustion engines. He shows that the Stanley Steamer was in many ways superior to the Model T--it set a land speed record in 1906 of more than 127 miles per hour, it had no transmission (and no transmission headaches), and it was simpler (one Stanley engine had only twenty-two moving parts) and quieter than a gas engine--but the steamers were killed off by factors that had little or nothing to do with their engineering merits, including the Stanley twins' lack of business acumen and

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an outbreak of hoof-and-mouth disease. Pool illuminates other aspects of technology as well. He traces how seemingly minor decisions made early along the path of development can have profound consequences further down the road, and perhaps most important, he argues that with the increasing complexity of our technological advances--from nuclear reactors to genetic engineering--the number of things that can go wrong multiplies, making it increasingly difficult to engineer risk out of the equation. Citing such catastrophes as Bhopal, Three Mile Island, the Exxon Valdez, the Challenger, and Chernobyl, he argues that it is time to rethink our approach to technology. The days are gone when machines were solely a product of larger-than-life inventors and hard-working engineers. Increasingly, technology will be a joint effort, with its design shaped not only by engineers and executives but also psychologists, political scientists, management theorists, risk specialists, regulators and courts, and the general public. Whether discussing bovine growth hormone, molten-salt reactors, or baboon-to-human transplants, *Beyond Engineering* is an engaging look at modern technology and an illuminating account of how technology and the modern world shape each other.

A History of Engineering and Technology offers a highly readable account of the development of engineering and technology from prehistory to the present. The author uses the broad sweep of history as a backdrop for expositions of important benchmarks in engineered works and products. The book presents early hydraulic engineering in the context of modern ideas relating technology to the complex social structures that arose in Sumeria and Egypt. It also provides a comprehensive and objective review of the greatest engineering civilization of antiquity--Greco-Roman--and discusses the western world's attempts to recover its achievements after the Middle Ages. The flowering of French and British engineered

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technology is portrayed through the men and machines that led to today's industrial society. Other topics discussed in *A History of Engineering and Technology* include the evolution of the modern ship, engineering in modern war and medicine, the advent of the computer, and the Space Age. Over 100 illustrations and the book's in-depth presentation of key theoretical developments make this volume essential as a college textbook for students, as well as an important reference resource for libraries, engineers, and scientists.

Explore engineering as a career with this introduction for ages 12 to 16 The job of an engineer is to solve all sorts of complex challenges facing the world while improving our lives through creative, innovative ideas. This engineering book for teens gives you a look into what engineers do and how they drive society forward through math and science. From designing tablets and smartphones to reimagining the way we collect and store renewable energy, this engineering book for teens introduces you to the major engineering disciplines and their distinct specialties, famous engineers throughout history, and more. *Engineering for Teens* offers: **Engineering fundamentals**--Discover the four main branches of engineering and their different specialties. **Inspired inventions**--Get examples of the incredible things that engineers have created, like fuel cells and medicines. **Inclusivity in engineering**--Learn all about the diversity within the field of engineering. Discover the wonders of engineering and prepare yourself for a life of scientific discovery with this engineering book for teens.

Membrane Technology and Engineering for Water Purification, Second Edition is written in a practical style with emphasis on: process description; key unit operations; systems design and costs; plant equipment description; equipment installation; safety and maintenance; process control; plant start-up; and operation and troubleshooting. It is supplemented by case studies

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and engineering rules-of-thumb. The author is a chemical engineer with extensive experience in the field, and his technical knowledge and practical know-how in the water purification industry are summarized succinctly in this new edition. This book will inform you which membranes to use in water purification and why, where and when to use them. It will help you to troubleshoot and improve performance and provides case studies to assist understanding through real-life examples. Membrane Technology section updated to include forward osmosis, electrodialysis, and diffusion dialysis Hybrid Membrane Systems expanded to cover zero liquid discharge, salt recovery and removal of trace contaminants Includes a new section on plant design, energy, and economics

Emily Hunt's 15-Minute STEM Book 2: More quick, creative science, technology, engineering and mathematics activities for 5-11-year-olds offers a stimulating selection of easy-to-resource STEM activities designed to engage and inspire young learners. Like most teachers and parents, you probably recognise STEM as being an important priority area for modern education. You may, however, be wondering: What does STEM education look like for young learners? How do I get children excited about STEM education? How can children learn STEM skills in just 15 minutes? What equipment do I need to teach STEM activities? Enter 15-minute STEM with the answers! Full of engaging and practical ideas, this innovative resource builds on the success of Emily's 15-Minute STEM (ISBN 978-178583335-9) and reassures teachers and parents that they don't need to be experts to deliver high-quality STEM education. Each of the 40 activities includes step-by-step instructions, takes just 15 minutes to complete and can be resourced from everyday materials found in the classroom or at home. This means that, with minimal preparation, teachers and parents can slot these cross-curricular activities into an

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otherwise busy day - simultaneously broadening children's learning and piquing their curiosity about the world around them. Accompanying instructions are phrased in a way that encourages the children to lead the learning and exploration, and opportunities for further investigation are provided in order to broaden the learning focus. Hand-drawn illustrations and full colour photographs are also included alongside each activity to give an idea of what the end results might look like. The activities make connections to real-world scenarios and have been linked to conceptually similar STEM-related careers - all of which are individually profiled in a glossary at the back of the book. The practical, problem-solving element of each activity offers a great way for children to develop important soft skills such as creativity, critical thinking and spatial awareness. Suitable for both educators and parents of young children.

Knowledge surrounding the behavior of earth materials is important to a number of industries, including the mining and construction industries. Further research into the field of geotechnical engineering can assist in providing the tools necessary to analyze the condition and properties of the earth. *Technology and Practice in Geotechnical Engineering* brings together theory and practical application, thus offering a unified and thorough understanding of soil mechanics. Highlighting illustrative examples, technological applications, and theoretical and foundational concepts, this book is a crucial reference source for students, practitioners, contractors, architects, and builders interested in the functions and mechanics of sedimentary materials.

This new edition provides major revisions to a text that is suitable for the introduction to biomedical engineering technology course offered in a number of technical institutes

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and colleges in Canada and the US. Each chapter has been thoroughly updated with new photos and illustrations which depict the most modern equipment available in medical technology. This third edition includes new problem sets and examples, detailed block diagrams and schematics and new chapters on device technologies and information technology.

Offering a basic understanding of each important topic in vacuum science and technology, this book concentrates on pumping issues, emphasizes the behavior of vacuum pumps and vacuum systems, and explains the relationships between pumps, instrumentation and high-vacuum system performance. The book delineates the technical and theoretical aspects of the subject without getting in too deep. It leads readers through the subtleties of vacuum technology without using a dissertation on mathematics to get them there. An interesting blend of easy-to-understand technician-level information combined with engineering data and formulae, the book provides a non-analytical introduction to high vacuum technology.

Combining engaging text with captivating images and helpful diagrams, renowned science writer Tom Jackson guides readers through the history of Engineering in the 7th installment of the groundbreaking Ponderables™ series.

Highly effective thinking is an art that engineers and scientists can be taught to develop. By presenting actual experiences and analyzing them as they are described, the author conveys the developmental thought processes employed and shows a style of thinking

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that leads to successful results is something that can be learned. Along with spectacular successes, the author also conveys how failures contributed to shaping the thought processes. Provides the reader with a style of thinking that will enhance a person's ability to function as a problem-solver of complex technical issues. Consists of a collection of stories about the author's participation in significant discoveries, relating how those discoveries came about and, most importantly, provides analysis about the thought processes and reasoning that took place as the author and his associates progressed through engineering problems.

From carbon fibre racing bikes to 'sharkskin' swimsuits, the application of cutting-edge design, technology and engineering has proved to be a vital ingredient in enhanced sports performance. This is the first book to offer a comprehensive survey of contemporary sports technology and engineering, providing a complete overview of academic, professional and industrial knowledge and technique. The book is divided into eight sections covering the following topics : Sustainable Sports Engineering Instrumentation Technology Summer Mobility Sports Winter Mobility Sports Apparel and Protection Equipment Sports Implements (racquets, clubs, bats, sticks) Sports Balls Sports Surfaces and Facilities Written by an international team of leading experts from industry, academia and commercial research institutes, the emphasis throughout the book is on innovation, the relationship between business and science, and the improvement of sports performance. This is an essential reference for anybody working

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in sports technology, sports product design, sports engineering, biomechanics, ergonomics, sports business or applied sport science.

This new book on systems management discusses important concerns for the development of systems from the perspective of information technology, information systems, and software systems engineering. It focuses on the systems management process for information technology and software development organizations.

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