

## Basic Engineering Concepts

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Basic Concepts of Electrical Engineering  
Chemical Engineering Explained  
Electrical Steels

### Industrial Engineering: Concepts, Methodologies, Tools, and Applications

Find the answers to your engineering questions with Core Engineering Concepts for Students and Professionals. This authoritative reference provides comprehensive coverage of thousands of engineering concepts in one convenient book, including topics covered in 4- and 5-year engineering degree programs and those encountered in practice. Core Engineering Concepts is a cross-disciplinary reference that can be used by engineers studying or practicing in any engineering field, including civil, mechanical, electrical, structural, environmental, industrial, and chemical engineering. Written for both students and practitioners by a professional engineer, it incorporates more than 30 years of engineering experience. "Core Engineering Concepts is a unique book. It's a blend of the most useful concepts taught in college and the most useful practical knowledge learned afterward."--Michael R. Lindeburg, PE  
The Go-To Reference for Engineering Students and Professionals · Covers the breadth of a 4-year engineering degree · Contains civil, mechanical, electrical, chemical, and industrial engineering subjects · Features 82 chapters covering thousands of engineering concepts · Contains more than 580 examples with step-by-step solutions · Presents over 3,700 essential engineering equations and formulas · References over 780 tables and 315 conversion factors in detailed appendices · Lists fully defined nomenclature for each chapter · Includes a comprehensive index  
Topics Covered · Atomic Theory · Biology · Chemistry · Circuits · Computer

Programming · Dynamics · Engineering Licensure · Engineering Management · Fluids · Heat Transfer · Material Science · Mathematics · Mechanics of Materials · Physical Representation · Physics · Statics · Systems Analysis · Thermodynamics

### **Bearings**

The Breakthrough Introduction to Chemical Engineering for Today's Students Fundamental Concepts and Computations in Chemical Engineering is well designed for today's chemical engineering students, offering lucid and logically arranged text that brings together the fundamental knowledge students need to gain confidence and to jumpstart future success. Dr. Vivek Utgikar illuminates the day-to-day roles of chemical engineers in their companies and in the global economy. He clearly explains what students need to learn and why they need to learn it, and presents practical computational exercises that prepare beginning students for more advanced study. Utgikar combines straightforward discussions of essential topics with challenging topics to intrigue more well-prepared students. Drawing on extensive experience teaching beginners, he introduces each new topic in simple, relatable language, and supports them with meaningful example calculations in Microsoft Excel and Mathcad. Throughout, Utgikar presents practical methods for effective problem solving, and explains how to set up and use computation tools to get accurate answers. Designed specifically for students entering chemical engineering programs, this text also serves as a handy, quick reference to the basics for more advanced students, and an up-to-date source of valuable information for educators and professionals. Coverage includes Where chemical engineering fits in the engineering field and overall economy Modern chemical engineering and allied industries and their largest firms How typical chemical engineering job functions build on what undergraduates learn The importance of computations, and the use of modern computational tools How to classify problems based on their mathematical nature Fundamental fluid flow phenomena and computational problems in practical systems Basic principles and computations of material and energy balance Fundamental principles and calculations of thermodynamics and kinetics in chemical engineering How chemical engineering systems and problems integrate and interrelate in the real world Review of commercial process simulation software for complex, large-scale computation

### **Core Engineering Concepts for Students and Professionals**

Professionals in the interdisciplinary field of computer science focus on the design, operation, and maintenance of computational systems and software. Methodologies and tools of engineering are utilized alongside computer applications to develop efficient and precise information databases. Computer Systems and Software Engineering: Concepts, Methodologies, Tools, and Applications is a comprehensive reference source for the latest scholarly material on trends, techniques, and uses of various technology applications and examines the benefits and challenges of these computational developments. Highlighting a range of pertinent topics such as utility computing, computer security, and information

systems applications, this multi-volume book is ideally designed for academicians, researchers, students, web designers, software developers, and practitioners interested in computer systems and software engineering.

### **Iterative Software Engineering for Multiagent Systems**

Electrical steels are critical components of magnetic cores used in applications ranging from large rotating machines, including energy generating equipment, and transformers to small instrument transformers and harmonic filters. Presented over two volumes, this comprehensive handbook provides full coverage of the state-of-the-art in electrical steels. Volume 1 covers the fundamentals and basic concepts of electrical steels. Topics covered include soft magnetic materials; basic magnetic concepts; magnetic domains, energy minimisation and magnetostriction; methods of observing magnetic domains in electrical steels; electromagnetic induction; fundamentals of a.c. signals; losses and eddy currents in soft magnetic materials; rotational magnetisation and losses; anisotropy of iron and its alloys; magnetic circuits; the effect of mechanical stress on loss, permeability and magnetostriction; magnetic measurements on electrical steels; background to modern electrical steels; production of electrical steels; amorphous and nano-crystalline soft magnetic materials; nickel-iron, cobalt-iron and aluminium-iron alloys; consolidated iron powder and ferrite cores; and temperature and irradiation dependence of magnetic and mechanical properties of soft magnetic materials. The companion Volume 2 describes performance and outlines applications. oduction of electrical steels; amorphous and nano-crystalline soft magnetic materials; nickel-iron, cobalt-iron and aluminium-iron alloys; consolidated iron powder and ferrite cores; and temperature and irradiation dependence of magnetic and mechanical properties of soft magnetic materials. The companion Volume 2 describes performance and outlines applications.

### **Air Pollution and Greenhouse Gases**

While successfully preventing earthquakes may still be beyond the capacity of modern engineering, the ability to mitigate damages with strong structural designs and other mitigation measures are well within the purview of science. Fundamental Concepts of Earthquake Engineering presents the concepts, procedures, and code provisions that are currentl

### **Hydraulic Engineering**

Bearings: from Technological Foundations to Practical Design Applications provides a modern study of bearing types, design factors, and industrial examples. The major classes of bearings are described, and design concepts are covered for rolling elements, surfaces, pivots, flexures, and compliance surfaces. Fluid film lubrication is presented, and the basics of tribology for bearings is explained. The book also looks at specific applications of bearing technology, including bearings in

vehicles, rotating machinery, machine tools, and home appliances. Case studies are also included.

### **Basic Electrical Engineering**

This book gives a practical guide for designers and users in Information and Communication Technology context. In particular, in the first Section, the definition of the fundamental terms according to the international standards are given. Then, some theoretical concepts and reliability models are presented in Chapters 2 and 3: the aim is to evaluate performance for components and systems and reliability growth. Chapter 4, by introducing the laboratory tests, puts in evidence the reliability concept from the experimental point of view. In ICT context, the failure rate for a given system can be evaluate by means of specific reliability prediction handbooks; this aspect is considered in Chapter 5, with practical applications. In Chapters 6, 7 and 8, the more complex aspects regarding both the Maintainability, Availability and Dependability are taken into account; in particular, some fundamental techniques such as FMECA (Failure Mode, Effects, and Criticality Analysis) and FTA (Fault Tree Analysis) are presented with examples for reparable systems.

### **Introduction to Basic Concepts in Engineering**

Value engineering is a systematic and organized procedural decision-making process, which is designed to ensure the maximum value for the client or the end consumer. At a time when success in business is critically dependent on the value attached to a product, this concept provides any enterprise with a result-driven framework for delivering better products and services at the lowest possible cost. This book is a comprehensive and in-depth exposition of the basic concepts, techniques and applications of value engineering. Simple and jargon-free, it is divided into three parts. The first part: - Deals with the basic conceptual framework of value engineering and its key parameters. The author highlights its relevance in the Indian scenario. The second part: - Examines both general and special techniques specifically developed and applied to value engineering. The final part: - Critically discusses the application of the techniques discussed in the second part; and - Is peppered with short cases. The discussion is peppered with short cases and the book itself is copiously illustrated to give the reader a holistic understanding of the concepts.

### **Introduction to Maintenance Engineering**

This fourth edition of this successful textbook succinctly presents the engineering concepts and unit operations used in food processing, in a unique blend of principles with applications. Depth of coverage is very high. The authors use their many years of teaching to present food engineering concepts in a logical progression that covers the standard course curriculum. Both are specialists in engineering and world-renowned. Chapters describe the application of a particular principle followed

by the quantitative relationships that define the related processes, solved examples and problems to test understanding. Supplemental processes including filtration, sedimentation, centrifugation, and mixing Extrusion processes for foods Packaging concepts and shelf life of foods Expanded information on Emerging technologies, such as high pressure and pulsed electric field; Transport of granular foods and powders; Process controls and measurements; Design of plate heat exchangers; Impact of fouling in heat transfer processes; Use of dimensional analysis in understanding physical phenomena

### **Value Engineering**

Whereas innovation has become part of daily language, in practice, realizing new product and new service development is a complex and daunting task for engineers, design engineering managers, managers, and those involved in other functions in organizations. Most books on innovation management approach this topic from a managerial or economic perspective; this text takes the actual design and engineering processes as starting point. To this purpose, it relates product design and engineering processes and their management to sources of innovation, collaboration with suppliers, and knowledge providers (for example, inventors and universities), and users. The managerial aspects get ample attention as well as the socioeconomic aspects in the context of product design and engineering. For this wide range of topics, the book provides both theoretical underpinning and practical guidance. Readers and students will benefit from this book by not only understanding the key mechanisms for innovation but also by the practical guidance it offers. The author uses diagrams, models, methods, and steps to guide readers to a better understanding of innovation projects. This practical approach and the link to theory make the book valuable to practitioners as well as engineering students.

### **Design Concepts for Engineers**

Basic Mechanical Engineering covers a wide range of topics and engineering concepts that are required to be learnt as in any undergraduate engineering course. Divided into three parts, this book lays emphasis on explaining the logic and physics of critical problems to develop analytical skills in students.

### **Fundamental Concepts in Electrical and Computer Engineering with Practical Design Problems**

The agent metaphor and the agent-based approach to systems design constitute a promising new paradigm for building complex distributed systems. However, until now, the majority of the agent-based applications available have been built by researchers who specialize in agent-based computing and distributed artificial intelligence. If agent-based computing is to become anything more than a niche technology practiced by the few, then the base of people who can successfully apply the approach needs to be broadened dramatically. A major step in this broadening endeavor is the development of

methodologies for agent-oriented software engineering accessible to and attractive for professional software engineers in their daily work. Against this background, this book presents one of the first coherent attempts to develop such a methodology for a broad class of agent-based systems. The author provides a clear introduction to the key issues in the field of agent-oriented software engineering.

### **Introducing Basic Structural Engineering Concepts Through a Web-based Interactive Learning Environment**

Fundamental Mass Transfer Concepts in Engineering Applications provides the basic principles of mass transfer to upper undergraduate and graduate students from different disciplines. This book outlines foundational material and equips students with sufficient mathematical skills to tackle various engineering problems with confidence. It covers mass transfer in both binary and multicomponent systems and integrates the use of Mathcad® for solving problems. This textbook is an ideal resource for a one-semester course. Key Features The concepts are explained with the utmost clarity in simple and elegant language Presents theory followed by a variety of practical, fully-worked example problems Includes a summary of the mathematics necessary for mass transfer calculations in an appendix Provides ancillary Mathcad® subroutines Includes end-of-chapter problems and a solutions manual for adopting instructors

### **Introduction to Food Engineering**

This textbook discusses engineering principles relating to air pollution and greenhouse gases (GHGs); it focuses on engineering principles and designs of related devices and equipment for air emission control for a variety of industries such as energy, chemical, and transportation industries. The book aims primarily at senior undergraduate and graduate students in mechanical, chemical and/or environmental engineering departments; it can also be used as a reference book by technical staff and design engineers who are interested in and need to have technical knowledge in air pollution and GHGs. The book is motivated by recent rapid advances in air pollution and greenhouse gas emissions and their control technologies. In addition to classic topics related to air pollution, this book is also featured with emerging topics related to air pollution and GHGs. It covers recent advances in engineering approaches to the reduction of GHG emissions including, but are not limited to, green energy technologies and carbon sequestration and storage. It also introduces an emerging topic in air pollution, which is referred to as Nano Air Pollution. It is a growing concern in air pollution, but largely missing in similar books, likely because of recent rapid advances in nanotechnology has outpaced the advances in nano air pollution control.

### **Fundamental Concepts and Computations in Chemical Engineering**

While successfully preventing earthquakes may still be beyond the capacity of modern engineering, the ability to mitigate damages with strong structural designs and other mitigation measures are well within the purview of science. Fundamental Concepts of Earthquake Engineering presents the concepts, procedures, and code provisions that are current!

### **Innovation Management and New Product Development for Engineers, Volume I**

Industrial engineering affects all levels of society, with innovations in manufacturing and other forms of engineering oftentimes spawning cultural or educational shifts along with new technologies. Industrial Engineering: Concepts, Methodologies, Tools, and Applications serves as a vital compendium of research, detailing the latest research, theories, and case studies on industrial engineering. Bringing together contributions from authors around the world, this three-volume collection represents the most sophisticated research and developments from the field of industrial engineering and will prove a valuable resource for researchers, academics, and practitioners alike.

### **Root Engineering**

Hydraulic Engineering: Fundamental Concepts includes hydraulic processes with corresponding systems and devices. The hydraulic processes includes the fundamentals of fluid mechanics and pressurized pipe flow systems. This book illustrates the use of appropriate pipeline networks along with various devices like pumps, valves and turbines. The knowledge of these processes and devices is extended to design, analysis and implementation.

### **Engineering Information Security**

This book constitutes the referred proceedings of the 5th International Conference on the Unified Modeling Language, UML 2002, held in Dresden, Germany in September/October 2002. The 25 revised full research papers and 5 revised experience papers presented were carefully reviewed and selected from 127 abstracts and 99 papers submitted. The papers are organized in topical sections on metamodeling, applying the UML, digging into the metamodel, experience with MDA, real-time and formal semantics, model engineering, profiles, methodology, and diagram interchange and security.

### **Basic Mechanical Engineering**

Assuming no mathematical or chemistry knowledge, this book introduces complete beginners to the field of petroleum engineering. Written in a straightforward style, the author takes a practical approach to the subject avoiding complex mathematics to achieve a text that is robust without being intimidating. Covering traditional petroleum engineering topics,

readers of this book will learn about the formation and characteristics of petroleum reservoirs, the chemical properties of petroleum, the processes involved in the exploitation of reservoirs, post-extraction processing, industrial safety, and the long-term outlook for the oil and gas production. The descriptions and discussions are informed by considering the production histories of several fields including the Ekofisk field in the North Sea, the Waburn Field in Canada, the Manifa Field in Saudi Arabia and the Wilmington Field off the Californian Coast. The factors leading up to the well blowouts on board the Deepwater Horizon in the Gulf of Mexico and in the Mantara Field in the Timor Sea are also examined. With a glossary to explain key words and concepts, this book is a perfect introduction for newcomers to a petroleum engineering course, as well as non-specialists in industry. Professor David Shallcross is one of the foremost practitioners in chemical engineering education worldwide. Readers of this book will find his previous book, *Chemical Engineering Explained*, a useful companion.

### **Basic Electrical Engg 3E**

Fundamentals of Engineering Mechanics presents introductory concepts in dynamics through a module-based learning approach. Basic concepts are introduced through a clear discussion of background theory, simple illustrations, understandable example problems with solutions, and relevant exercises with the answers provided. This textbook can be used for the review of engineering mechanics fundamentals and for undergraduate course enhancement in dynamics. It can also be used as a study aid for students and professionals preparing for the Fundamentals of Engineering (FE) Examination or the Principles and Practice of Engineering (PE) Examination, both of which are required for board certification of practicing engineers. It makes a great desk reference book as well.

### **Fundamental Mass Transfer Concepts in Engineering Applications**

### **Difficult Engineering Concepts Better Explained: Statics And Applications**

In many cases, the beginning engineering student is thrown into upper-level engineering courses without an adequate introduction to the basic material. This, at best, causes undue stress on the student as they feel unprepared when faced with unfamiliar material, and at worst, results in students dropping out of the program or changing majors when they discover that their chosen field of engineering is not what they thought it was. The purpose of this text is to introduce the student to a general cross-section of the field of electrical and computer engineering. The text is aimed at incoming freshmen, and as such, assumes that the reader has a limited to nonexistent background in electrical engineering and knowledge of no more than pre-calculus in the field of mathematics. By exposing students to these fields at an introductory

level, early in their studies, they will have both a better idea of what to expect in later classes and a good foundation of knowledge upon which to build.

### **Computer Systems and Software Engineering: Concepts, Methodologies, Tools, and Applications**

### **Petroleum Engineering Explained**

Electrical Engineering Essence of electricity, Conductors, Semiconductors and insulators (elementary treatment only); Electric field, electric current, Potential and potential difference, Electromotive force, Electric power, Ohm's law, Basic circuit components, Electromagnetism related laws, Magnetic field due to electric current flow, Force on a current carrying conductor placed in a magnetic field, Faradays laws of electromagnetic induction. Types of induced EMF's, Kirchhoff's laws, Simple problems. Network Analysis Basic definitions, Types of elements, types of sources, Resistive networks, Inductive networks, Capacitive networks, Series parallel circuits, Star delta and delta star transformation, Network theorems- Superposition, Thevenin's, Maximum power transfer theorems and simple problems. Magnetic Circuits Basic definitions, Analogy between electric and magnetic circuits, Magnetization characteristics of Ferro magnetic materials, Self inductance and mutual inductance, Energy in linear magnetic systems, Coils connected in series, Attracting force or electromagnets. Alternating Quantities Principle of ac voltages, Waveforms and basic definitions, Relationship between frequency, Speed and number of poles, Root mean square and average values of alternating currents and voltage, form factor and peak factor, Phasor representation of alternating quantities, The J operator and phasor algebra, analysis of ac circuits with single basic network element, single phase series circuits, Single phase parallel circuits, Single phase series parallel circuits, Power in ac circuits. Transformers Principles of operation, Constructional details, Ideal Transformer and Practical Transformer, Losses, Transformer Test, Efficiency and Regulation Calculations. Direct current machines Principle of operation of dc machines, Armature windings, E.M.F. equation in a dc machine, Torque production in a dc machine, Operation of a dc machine as a generator, Operation of a dc machine as a motor. A.C. Machines Three phase induction motor, principle of operation, Slip and rotor frequency, Torque (simple problems). Synchronous Machines Principle of operation, EMF equation (Simple problems on EMF). Synchronous motor principle and operation (Elementary treatment only) Basic Instrument Classification of instruments, Operating principles, Essential features of measuring instruments, Moving coil permanent magnet (PMMC) instruments, Moving Iron of Ammeters and Voltmeters (elementary treatment only).

### **Fundamental Concepts of Earthquake Engineering**

Explore the profession of engineering, and learn the tools you need to start strong in college. This book will introduce you to the engineering profession and give you an idea of what it will be like to major in engineering in college. It covers the wide range of engineering specialties, various career pathways, and the overall benefits of the earning an engineering degree. Yet this book aims to do more than simply build your excitement about studying engineering. It also means to provide an introduction to the tools that you will need to start strong once you begin college. This text provides a very basic introduction and overview of what we call 'engineering fundamentals' - the concepts that every engineer needs to know. Topics are presented in a straightforward manner that avoids the need for complicated mathematics, allowing for a focus on understanding and applying the concepts, rather than getting bogged down in the technical solution. Key Features Discussions on what engineers do, the various engineering specialties, and the skills and traits common to all successful engineers Details what an engineering education entails, and how students can set themselves up for success both in college admissions and in engineering school Considerations in choosing an engineering school and on pursuing advanced degrees "Professional Profiles" of real-life practicing engineers provide a first-hand perspective on the wide range of career paths available to those with an engineering degree Each concept is supported with sample problems and worked solutions, reinforcing theory and developing understanding via hands-on practice "Engineering Application" case-studies help relate the presented concepts to real-world challenges and solutions Spreadsheets are introduced as an important engineering tool, and their use in solving problems is developed via step-by-step learning activities Relevant practice problems with selected answers allow for both additional practice and for measures of proficiency

### **Soil Mechanics**

Written for those less comfortable with science and mathematics, this text introduces the major chemical engineering topics for non-chemical engineers. With a focus on the practical rather than the theoretical, the reader will obtain a foundation in chemical engineering that can be applied directly to the workplace. By the end of this book, the user will be aware of the major considerations required to safely and efficiently design and operate a chemical processing facility. Simplified accounts of traditional chemical engineering topics are covered in the first two-thirds of the book, and include: materials and energy balances, heat and mass transport, fluid mechanics, reaction engineering, separation processes, process control and process equipment design. The latter part details modern topics, such as biochemical engineering and sustainable development, plus practical topics of safety and process economics, providing the reader with a complete guide. Case studies are included throughout, building a real-world connection. These case studies form a common thread throughout the book, motivating the reader and offering enhanced understanding. Further reading directs those wishing for a deeper appreciation of certain topics. This book is ideal for professionals working with chemical engineers, and decision makers in chemical engineering industries. It will also be suitable for chemical engineering courses where a simplified introductory text is desired.

## **Fundamental Concepts of Earthquake Engineering**

Engineering education in K-12 classrooms is a small but growing phenomenon that may have implications for engineering and also for the other STEM subjects--science, technology, and mathematics. Specifically, engineering education may improve student learning and achievement in science and mathematics, increase awareness of engineering and the work of engineers, boost youth interest in pursuing engineering as a career, and increase the technological literacy of all students. The teaching of STEM subjects in U.S. schools must be improved in order to retain U.S. competitiveness in the global economy and to develop a workforce with the knowledge and skills to address technical and technological issues. Engineering in K-12 Education reviews the scope and impact of engineering education today and makes several recommendations to address curriculum, policy, and funding issues. The book also analyzes a number of K-12 engineering curricula in depth and discusses what is known from the cognitive sciences about how children learn engineering-related concepts and skills. Engineering in K-12 Education will serve as a reference for science, technology, engineering, and math educators, policy makers, employers, and others concerned about the development of the country's technical workforce. The book will also prove useful to educational researchers, cognitive scientists, advocates for greater public understanding of engineering, and those working to boost technological and scientific literacy.

## **Bioprocess Engineering**

## **Mechanical Engineering Design**

This volume illustrates the complex root system, including the various essential roles of roots as well as their interaction with diverse microorganisms localized in or near the root system. Following initial chapters describing the anatomy and architecture as well as the growth and development of root systems, subsequent chapters focus on the various types of root symbiosis with bacteria and fungi in the rhizosphere. A third section covers the physiological strategies of roots, such as nitrate assimilation, aquaporins, the role of roots in plant defense responses and in response to droughts and salinity changes. The book's final chapters discuss the prospects of applied engineering of roots, i.e., inventing new root structures or functions through genetic modification, but also with conventional breeding and manipulation of root symbionts. The budding field of root engineering is expected to promote a second green revolution.

## **Engineering in K-12 Education**

This Book Presents A Practical-Oriented, Sound, Modularized Coverage Of Fundamental Topics Of Basic Electrical

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Engineering, Network Analysis & Network Theorems, Electromagnetism & Magnetic Circuit, Alternating Current & Voltages, Electrical Measurement & Measuring Instrument And Electric Machines. Salient Features: # Clarification Of Basic Concepts # Several Solved Examples With Detailed Explanation # At The End Of Chapters, There Are Descriptive And Numerical Unsolved Problems # Written In Very Simple Language And Suitable For Self-Study # Step-By-Step Procedures Given For Solving Numerical

### **Fundamentals of Engineering Mechanics**

Engineering statics discusses proper ways of conducting force analysis. This unique compendium treats fundamental force analysis in a systematic and comprehensive manner. The indispensable volume is suitable for undergraduate students to learn the subject in greater depth, for graduate students to review essential skills in force analysis correctly, and for practicing engineers to review and refresh key concepts. This useful reference text also presented numerous application examples for readers in solving daily practical problems.

### **Fundamentals of Engineering Mechanics**

"This book teaches the principles of design, and how they apply to engineering design projects and future job activities. Updated in response to reviewer feedback, this edition features even more design projects and increased coverage of team skills."--Publisher's website.

### **Reliability Engineering**

### **Engineering Fluid Dynamics**

A practical approach to the study of fluid mechanics at the graduate level.

### **Biomedical Engineering and Instrumentation**

For Senior-level and graduate courses in Biochemical Engineering, and for programs in Agricultural and Biological Engineering or Bioengineering. This concise yet comprehensive text introduces the essential concepts of bioprocessing-internal structure and functions of different types of microorganisms, major metabolic pathways, enzymes, microbial genetics, kinetics and stoichiometry of growth and product information-to traditional chemical engineers and those in

related disciplines. It explores the engineering principles necessary for bioprocess synthesis and design, and illustrates the application of these principles to modern biotechnology for production of pharmaceuticals and biologics, solution of environmental problems, production of commodities, and medical applications.

### **A Summer Study Report of the Engineering Concepts Curriculum Project**

A logical, integrated and comprehensive coverage of both introductory and advanced topics in soil mechanics in an easy-to-understand style. Emphasis is placed on presenting fundamental behaviour before more advanced topics are introduced. The use of S.I. units throughout, and frequent references to current international codes of practice and refereed research papers, make the contents universally applicable. Written with the university student in mind and packed full of pedagogical features, this book provides an integrated and comprehensive coverage of both introductory and advanced topics in soil mechanics. It includes: worked examples to elucidate the technical content and facilitate self-learning a convenient structure (the book is divided into sections), enabling it to be used throughout second, third and fourth year undergraduate courses universally applicable contents through the use of SI units throughout, frequent references to current international codes of practice and refereed research papers new and advanced topics that extend beyond those in standard undergraduate courses. The perfect textbook for a range of courses on soils mechanics and also a very valuable resource for practising professional engineers.

### **UML 2002 - The Unified Modeling Language. Model Engineering, Concepts, and Tools**

This introductory textbook links theory with practice using real illustrative cases involving products, plants and infrastructures and exposes the student to the evolutionary trends in maintenance. Provides an interdisciplinary approach which links, engineering, science, technology, mathematical modelling, data collection and analysis, economics and management Blends theory with practice illustrated through examples relating to products, plants and infrastructures Focuses on concepts, tools and techniques Identifies the special management requirements of various engineered objects (products, plants, and infrastructures)

### **Basic Concepts of Electrical Engineering**

Engineering Information Security covers all aspects of information security using a systematic engineering approach and focuses on the viewpoint of how to control access to information. Includes a discussion about protecting storage of private keys, SCADA, Cloud, Sensor, and Ad Hoc networks Covers internal operations security processes of monitors, review exceptions, and plan remediation Over 15 new sections Instructor resources such as lecture slides, assignments, quizzes,

and a set of questions organized as a final exam If you are an instructor and adopted this book for your course, please email [ieeeproposals@wiley.com](mailto:ieeeproposals@wiley.com) to get access to the additional instructor materials for this book.

### **Chemical Engineering Explained**

Fundamentals of Engineering Mechanics presents introductory concepts in statics and dynamics, through a module-based learning approach. Basic concepts are introduced through a simplified discussion of background theory, example problems, and exercises with the answers provided. This textbook can be used for the review of engineering mechanics fundamentals and for undergraduate course enhancement in separate or combined courses in statics and/or dynamics. It can also be used as a study aid for students and professionals preparing for the Fundamentals of Engineering and/or Professional Engineer Examinations. It makes a great desk reference book as well.

### **Electrical Steels**

This textbook is designed to serve as a text for undergraduate students of mechanical engineering. It covers fundamental principles, design methodologies and applications of machine elements. It helps students to learn to analyse and design basic machine elements in mechanical systems. Beginning with the basic concepts, the book discusses wide range of topics in design of mechanical elements. The emphasis is on the underlying concepts of design procedures. The inclusion of machine tool design makes the book very useful for the students of production engineering. Students will learn to design different types of elements used in the machine design process such as fasteners, shafts, couplings, etc. and will be able to design these elements for each application. Following a simple and easy to understand approach, the text contains:

- Variety of illustrated design problems in detail
- Step by step design procedures of different machine elements
- Large number of machine design data

Audience Undergraduate students of Mechanical Engineering.

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