

Introduction To Electrical And Computer Engineering

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CMPEN 271 : Department of Electrical and Computer Engineering, College of Engineering

Introduction to Electrical and Computer Engineering Taught in Context Introduction to Electrical and Computer Engineering

This book is designed primarily to meet two objectives. It is intended to serve as a textbook for a one-semester university course for graduate or senior undergraduate students in the physical sciences, electrical engineering and other related disciplines, or it may be used as a reference book for those who are working in the field. For those intending to use the book for self-study, a general knowledge of electromagnetism, electrical circuitry and plasma and discharge physics is necessary. In order to meet these diverse objectives, the authors have attempted to make the book reasonably compact so that it can fit in a one-semester schedule while retaining its comprehensiveness in serving as a reference book. The contents are arranged so that theory and practice are proportionally balanced and each topic consists of essentially four basic elements: fundamental principles, mathematical expressions and formulas, examples and illustrations, numerical data and applications. In order to keep its compactness, lengthy theoretical discussions and detailed mathematical derivations are avoided whenever possible.

Electrical Energy Conversion and Transport John Wiley & Sons

"This authoritative work presents detailed coverage of modern modeling and analysis techniques used in the design of electric power transmission systems -- emphasizing grounding and transients. It provides the theoretical background necessary for understanding problems related to grounding systems, such as safety and protection.

An Introduction to Numerical Analysis

for Electrical and Computer Engineers

John Wiley & Sons

General literature -- Introductory and Survey.

A Friendly Introduction for Electrical and Computer Engineers McGraw-Hill Science, Engineering & Mathematics

Striking a nice balance between mathematical rigor and engineering-oriented applications, this second edition covers the bedrock parts of classical control theory — the Routh-Hurwitz theorem and applications, Nyquist diagrams, Bode plots, root locus plots, and the design of controllers (phase-lag, phase-lead, lag-lead, and PID). It also covers three more advanced topics — non-linear control, modern control, and discrete-time control. This invaluable book makes effective use of MATLAB® as a tool in design and analysis. Containing 75 solved problems and 200 figures, this edition will be useful for junior and senior level university students in engineering who have a good knowledge of complex variables and linear algebra.

Introduction to Digital Systems Cram101 Readers benefit because the book is based on these three themes: (1) it builds an understanding of concepts based on information the reader has previously learned; (2) it helps stress the relationship between conceptual understanding and problem-solving approaches; (3) the authors provide numerous examples and problems that use realistic values and situations to give users a strong foundation of engineering practice. The book also includes a PSpice Supplement which contains problems to teach readers how to construct PSpice source files; and this PSpice Version 9.2 can be used to solve many of the exercises and problems found in the book. Topical emphasis is on the basic techniques of circuit analysis—illustrated via a Digital-to-Analog Resistive Ladder (Chapter 2); the Flash Converter (Chapter 4); Dual Slope Analog-to-Digital Converter (Chapter 5); Effect of parasite inductance on the step response of a series RLC circuit (Chapter 6); a Two-Stage RC Ladder Network (Chapter 8); and

a Switching Surge Voltage (Chapter 9). For Electrical and Computer Engineers.

Ultra-Low Voltage Nano-Scale Memories Wiley-IEEE Press

Dorf and Svoboda's text builds on the strength of previous editions with its emphasis on real-world problems that give students insight into the kinds of problems that electrical and computer engineers are currently addressing. Students encounter a wide variety of applications within the problems and benefit from the author team's enormous breadth of knowledge of leading edge technologies and theoretical developments across Electrical and Computer Engineering's subdisciplines.

With MATLAB Programs and Experiments World Scientific Publishing Company

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.

An Introduction Addison-Wesley
THE DIGITAL INFORMATION AGE SECOND EDITION by bestselling author Roman Kuc is designed for students considering electrical engineering as a major, and non-engineering majors interested in understanding digital communication systems. Communication between humans and smart devices takes place through

sensors and actuators, with logic circuits manipulating binary data to implement useful tasks. The text then examines the basic problem of communicating audio and video data over a network connecting computers and smart devices. System operation is described from analog-to-digital conversion, signals that encode data, through the processing that extracts data from noise-corrupted signals and error correction techniques, to data packet transmission over wired and wireless networks. Basic topics from probability and digital signal processing are presented as needed and illustrated with relevant examples. Ideas are illustrated and extended by problems and projects completed in Excel, with sophistication that evolves along with the course, starting with spreadsheet formulas and graphs, through macros, to simple Visual Basic for Applications (VBA) programming that produces animations that simulate system operation. The accrued facility with Excel techniques is a course outcome valued by students in all majors. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

An Introduction Peachpit Press
Designed to support interactive teaching and computer assisted self-learning, this second edition of *Electrical Energy Conversion and Transport* is thoroughly updated to address the recent environmental effects of electric power generation and transmission, which have become more important together with the deregulation of the industry. New content explores different power generation methods, including renewable energy generation (solar, wind, fuel cell) and includes new sections that discuss the upcoming Smart Grid and the distributed power generation using renewable energy generation, making the text essential reading material for students and practicing engineers.

A Friendly Introduction for Electrical and Computer Engineers Pearson
Readers benefit because the book is based on these three themes: (1) it builds an understanding of concepts based on information the reader has previously learned; (2) it helps stress the relationship between conceptual understanding and problem-solving approaches; (3) the authors provide numerous examples and problems that use realistic values and situations to give users a strong foundation of engineering practice. The book also includes a PSpice Supplement which contains problems to teach readers how to construct PSpice source files; and this PSpice Version 9.2 can be used to

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An Introduction to Electrical Science, 2nd ed Universal-Publishers
This comprehensive revision of a popular text helps non-electrical engineering majors--the future users, rather than the designers of electrical devices, systems, and machines--gain a conceptual understanding of electrical engineering. Early coverage of systems and an emphasis on an IC (integrated circuits) "building block" approach motivates non-majors. The text features integration of analog and digital technology with cutting-edge coverage of op-amps, feedback and analog systems. A section on SPICE, the leading computer-aided circuit analysis software, introduces students to computerized analysis of circuits. Chapter-end Applications capture student interest by relating material to contemporary topics such as automobile suspension systems, high-fidelity audio, and hand-held computers.

Introduction to Computer Tools in Electrical Engineering World Scientific Publishing Company Incorporated
This significantly revised edition presents a broad introduction to Control Systems and balances new, modern methods with the more classical. It is an excellent text for use as a first course in Control Systems by undergraduate students in all branches of engineering and applied mathematics. The book contains: A comprehensive coverage of automatic control, integrating digital and computer control techniques and their implementations, the practical issues and problems in Control System design; the three-term PID controller, the most widely used controller in industry today; numerous in-chapter worked examples and end-of-chapter exercises. This second edition also includes an introductory guide to some more recent developments, namely fuzzy logic control and neural networks.

Probability and Stochastic Processes Wiley
This book is written for students and teachers engaged in electrical and computer engineering (ECE) design projects, primarily in the senior year. It guides students and faculty through the steps necessary for the successful

execution of design projects. The objective of the text is to provide a treatment of the design process in ECE with a sound academic basis that is integrated with practical application. It has a strong guiding vision -- that a solid understanding of the Design Process, Design Tools, and the right mix of Professional Skills are critical for project and career success. This text is unique in providing a comprehensive design treatment for ECE.

Introduction to Electrical Engineering Springer Science & Business Media
Mathematics for Electrical Engineering and Computing embraces many applications of modern mathematics, such as Boolean Algebra and Sets and Functions, and also teaches both discrete and continuous systems - particularly vital for Digital Signal Processing (DSP). In addition, as most modern engineers are required to study software, material suitable for Software Engineering - set theory, predicate and propositional calculus, language and graph theory - is fully integrated into the book. Excessive technical detail and language are avoided, recognising that the real requirement for practising engineers is the need to understand the applications of mathematics in everyday engineering contexts. Emphasis is given to an appreciation of the fundamental concepts behind the mathematics, for problem solving and undertaking critical analysis of results, whether using a calculator or a computer. The text is backed up by numerous exercises and worked examples throughout, firmly rooted in engineering practice, ensuring that all mathematical theory introduced is directly relevant to real-world engineering. The book includes introductions to advanced topics such as Fourier analysis, vector calculus and random processes, also making this a suitable introductory text for second year undergraduates of electrical, electronic and computer engineering, undertaking engineering mathematics courses. Dr Attenborough is a former Senior Lecturer in the School of Electrical, Electronic and Information Engineering at South Bank University. She is currently Technical Director of The Webbery - Internet development company, Co. Donegal, Ireland. Fundamental principles of mathematics introduced and applied in engineering practice, reinforced through over 300 examples directly relevant to real-world engineering

A Friendly Introduction for Electrical and Computer Engineers Fourth Edition Elsevier
This laboratory manual is intended for use in an Introduction to Electrical and

Computer Engineering course and is appropriate for two- and four-year electrical engineering curriculums. The manual contains sufficient exercises for a typical 15-week course using a two-to-three-hour practicum period. The topics range from basic laboratory procedures series-parallel circuits, mesh and nodal analysis, an introduction to capacitors and inductors as well as basic digital logic, Boolean equivalents, digital encoders, decoders, mux and demux circuits as well as basic circuits for digital computation. For equipment, each lab station should include a dual adjustable DC power supply and a quality DMM capable of reading DC voltage, current and resistance. A selection of standard value 1/4 watt carbon film resistor ranging from a few ohms to a few mega ohms is required along with 10 k Ω and 100 k Ω potentiometers, 100 nF and 220 nF capacitors, and a few discrete 7400 series logic gates and 555 timers. Each exercise begins with an Objective and a Theory Overview. The Equipment List follows with space provided for serial numbers and measured values of components. Schematics are presented next along with the step-by-step procedure. All data tables are grouped together, typically with columns for the theoretical and experimental results, along with a column for the percent deviations between them. Finally, a group of appropriate questions are presented. For those with longer scheduled lab times, a useful addition is to simulate the circuit(s) with a SPICE-based tool such as LTSpice, or similar software, and compare those results to the theoretical and experimental results as well.

Studyguide for Probability and Stochastic Processes Prentice Hall

ESource—Prentice Hall's Engineering Source—provides a complete, flexible introductory engineering and computing program. Featuring over 15 modules and growing, ESource allows users to fully customize their series through the ESource website. Users are not only able to pick and choose modules, but also sections of modules, and re-paginate and re-index the

complete project. For any Engineer or Computer Scientist interested in a complete, customized reference.

An Introduction to Control Systems John Wiley & Sons

Dorf and Svoboda's text builds on the strength of previous editions with its emphasis on real-world problems that give students insight into the kinds of problems that electrical and computer engineers are currently addressing. Students encounter a wide variety of applications within the problems and benefit from the author team's enormous breadth of knowledge of leading edge technologies and theoretical developments across Electrical and Computer Engineering's subdisciplines.

Introductory Circuits for Electrical and Computer Engineering Routledge

This text introduces engineering students to probability theory and stochastic processes. Along with thorough mathematical development of the subject, the book presents intuitive explanations of key points in order to give students the insights they need to apply math to practical engineering problems. The first seven chapters contain the core material that is essential to any introductory course. In one-semester undergraduate courses, instructors can select material from the remaining chapters to meet their individual goals. Graduate courses can cover all chapters in one semester.

Probability and Stochastic Processes CRC Press

Ultra-low voltage large-scale integrated circuits (LSIs) in nano-scale technologies are needed both to meet the needs of a rapidly growing mobile cell phone market and to offset a significant increase in the power dissipation of high-end microprocessor units. The goal of this book is to provide a detailed explanation of the state-of-the-art nanometer and sub-1-V memory LSIs that are playing decisive roles in power conscious systems.

Emerging problems between the device, circuit, and system levels are systematically discussed in terms of reliable high-speed operations of memory

cells and peripheral logic circuits. The effectiveness of solutions at device and circuit levels is also described at length through clarifying noise components in an array, and even essential differences in ultra-low voltage operations between DRAMs and SRAMs.

Electrical Engineering Oxford University Press on Demand

This book combines the teaching of the MATLAB programming language with the presentation and development of carefully selected electrical and computer engineering (ECE) fundamentals. This is what distinguishes it from other books concerned with MATLAB: it is directed specifically to ECE concerns. Students will see, quite explicitly, how and why MATLAB is well suited to solve practical ECE problems. This book is intended primarily for the freshman or sophomore ECE major who has no programming experience, no background in EE or CE, and is required to learn MATLAB programming. It can be used for a course about MATLAB or an introduction to electrical and computer engineering, where learning MATLAB programming is strongly emphasized. A first course in calculus, usually taken concurrently, is essential. The distinguishing feature of this book is that about 15% of this MATLAB book develops ECE fundamentals gradually, from very basic principles. Because these fundamentals are interwoven throughout, MATLAB can be applied to solve relevant, practical problems. The plentiful, in-depth example problems to which MATLAB is applied were carefully chosen so that results obtained with MATLAB also provide insights about the fundamentals. With this "feedback approach" to learning MATLAB, ECE students also gain a head start in learning some core subjects in the EE and CE curricula. There are nearly 200 examples and over 80 programs that demonstrate how solutions of practical problems can be obtained with MATLAB. After using this book, the ECE student will be well prepared to apply MATLAB in all coursework that is commonly included in EE and CE curricula.