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Circuit Analysis of A-C Power Systems... - Edith Clarke 1950

Fundamentals of Industrial Electronics - Bogdan M. Wilamowski 2011-03-04
The Industrial Electronics Handbook, Second Edition combines traditional and newer, more specialized knowledge that will help industrial electronics engineers develop practical solutions for the design and implementation of high-power applications. Embracing the broad technological scope of the field, this collection explores fundamental areas, including analog and digital circuits, electronics, electromagnetic machines, signal processing, and industrial control and communications systems. It also facilitates the use of intelligent systems—such as neural networks, fuzzy systems, and evolutionary methods—in terms of a hierarchical structure that makes factory control and supervision more efficient by addressing the needs of all production components. Enhancing its value, this fully updated collection presents research and global trends as published in the IEEE Transactions on Industrial Electronics Journal, one of the largest and most respected publications in the field. Fundamentals of Industrial Electronics covers the essential areas that form the basis for the field. This volume presents the basic knowledge that can be applied to the other sections of the handbook. Topics covered include: Circuits and signals Devices Digital circuits Digital and analog signal processing Electromagnetics Other volumes in the set: Power Electronics and Motor Drives Control and Mechatronics Industrial Communication Systems Intelligent Systems

Introduction to Electrical Circuit Analysis - Ozgur Ergul 2017-06-26
A concise and original presentation of the fundamentals for 'new to the subject' electrical engineers This book has been written for students on electrical engineering courses who don't necessarily possess prior knowledge of electrical circuits. Based on the author's own teaching experience, it covers the analysis of simple electrical circuits consisting of a few essential components using fundamental and well-known methods and techniques. Although the above content has been included in other circuit analysis books, this one aims at teaching young engineers not only from electrical and electronics engineering, but also from other areas, such as mechanical engineering, aerospace engineering, mining engineering, and chemical engineering, with unique pedagogical features such as a puzzle-like approach and negative-case examples (such as the unique "When Things Go Wrong..." section at the end of each chapter). Believing that the traditional texts in this area can be overwhelming for beginners, the author approaches his subject by providing numerous examples for the student to solve and practice before learning more complicated components and circuits. These exercises and problems will provide instructors with in-class activities and tutorials, thus establishing this book as the perfect complement to the more traditional texts. All examples and problems contain detailed analysis of various circuits, and are solved using a 'recipe' approach, providing a code that motivates students to decode and apply to real-life engineering scenarios Covers the basic topics of resistors, voltage and current sources, capacitors and inductors, Ohm's and Kirchhoff's Laws, nodal and mesh analysis, black-box approach, and Thevenin/Norton equivalent circuits for both DC and AC cases in transient and steady states Aims to stimulate interest and discussion in the basics, before moving on to more modern circuits with higher-level components Includes more than 130 solved examples and 120 detailed exercises with supplementary solutions Accompanying website to provide supplementary materials www.wiley.com/go/ergul4412
Fundamentals of Electrical Circuit Analysis - Md. Abdus Salam 2018-03-20

This book is designed as an introductory course for undergraduate students, in Electrical and Electronic, Mechanical, Mechatronics, Chemical and Petroleum engineering, who need fundamental knowledge of electrical circuits. Worked out examples have been presented after discussing each theory. Practice problems have also been included to enrich the learning experience of the students and professionals. PSpice and Multisim software packages have been included for simulation of different electrical circuit parameters. A number of exercise problems have been included in the book to aid faculty members.
Electric Circuit Analysis - Charles A. Schuler 1993
Designed for introductory courses in electricity and electronics, this text covers fundamental concepts, dc circuit analysis, ac circuit analysis, Ohm's law, network theorems and components. It also introduces both linear and digital electronics. Basic algebra and trigonometry are the only prerequisites for this core technology programme, which employs the conventional flow approach to the basics of electricity and electronics. Teaching/learning aids, such as self-tests, summaries, objectives, graded questions and illustrative examples, are integrated throughout the text.
Foundations of Electric Circuits - J. R. Cogdell 1999
Extracted from the highly successful Foundations of Electrical Engineering by the same author, this book designed for a non-major, one-semester course with coverage of electric circuits, introduces concepts and vocabulary that are defined clearly and accurately, key unifying ideas in electric circuits are identified with icons in the margins, and problem solving techniques are presented in the many examples. The book presents basic circuit analysis techniques, first and second-order transient analysis, AC circuit theory, transient and steady state circuit analysis based on complex numbers, and an introduction to electric power systems. The presentation assumes knowledge of basic physics and calculus and is ideal for electrical engineering students with one course in circuits. Used with Foundations of Electronics, this book is ideal for a one-semester course in circuits and electronics for physics, engineering, or computer science students. FEATURES/BENEFITS Emphasis is placed on clear definitions of concepts and vocabulary. Problems are offered at three levels: What if problems extending examples in the text, with answers; Check our understanding problems after each major section, with answers, and extensive end-of-chapter problems identified with chapter sections, with answers for odd problems. Full pedagogical tools: chapter objectives, marginal aids, chapter summaries, chapter glossaries tied to context, and a complete index.
Concepts in Electric Circuits - Wasif Naeem 2009

Electric Circuits, Systems, and Motors - Timothy A. Bigelow 2020-02-26
This textbook provides an introduction to circuits, systems, and motors for students in electrical engineering as well as other majors that need an introduction to circuits. Unlike most other textbooks that highlight only circuit theory, this book goes into detail on many practical aspects of working with circuits, including electrical safety and the proper method to measure the relevant circuit parameters using modern measurement systems. Coverage also includes a detailed discussion of motors and generators, including brushless DC motors, as these are critical topics in the robotic and mechatronics industries. Lastly, the book discusses A/D and D/A converters given their importance in modern measurement and control systems. In addition to covering the basic circuit concepts, the author also provides the students with the necessary mathematics to analyze correctly the circuit concepts being presented. The chapter on phasor

domain circuit analysis begins with a detailed review of complex numbers as many students are weak in this area. Likewise, before discussing filters and Bode Diagrams, the Fourier Transform and later the Laplace Transform are explained.

AC Theory - Stan Klein 2004
Beginning with a review of the methods and techniques of DC theory, this book adds the concepts of capacitance and inductance as they relate to alternating current (AC) theory and features a host of circuit analysis tools that build on concepts already learned. It also discusses how to analyze the possible combination of RLC circuits.

AC Circuits and Power Systems in Practice - Graeme Vertigan 2017-12-18
The essential guide that combines power system fundamentals with the practical aspects of equipment design and operation in modern power systems Written by an experienced power engineer, AC Circuits and Power Systems in Practice offers a comprehensive guide that reviews power system fundamentals and network theorems while exploring the practical aspects of equipment design and application. The author covers a wide-range of topics including basic circuit theorems, phasor diagrams, per-unit quantities and symmetrical component theory, as well as active and reactive power and their effects on network stability, voltage support and voltage collapse. Magnetic circuits, reactor and transformer design are analyzed, as is the operation of step voltage regulators. In addition, detailed introductions are provided to earthing systems in LV and MV networks, the adverse effects of harmonics on power equipment and power system protection. Finally, European and American engineering standards are presented where appropriate throughout the text, to familiarize the reader with their use and application. This book is written as a practical power engineering text for engineering students and recent graduates. It contains more than 400 illustrations and is designed to provide the reader with a broad introduction to the subject and to facilitate further study. Many of the examples included come from industry and are not normally covered in undergraduate syllabi. They are provided to assist in bridging the gap between tertiary study and industrial practice, and to assist the professional development of recent graduates. The material presented is easy to follow and includes both mathematical and visual representations using phasor diagrams. Problems included at the end of most chapters are designed to walk the reader through practical applications of the associated theory.

Schaum's Outline of Theory and Problems of Basic Circuit Analysis - John O'Malley 1982
Confusing Textbooks? Missed Lectures? Not Enough Time?. . Fortunately for you, there's Schaum's Outlines. More than 40 million students have trusted Schaum's to help them succeed in the classroom and on exams. Schaum's is the key to faster learning and higher grades in every subject. Each Outline presents all the essential course information in an easy-to-follow, topic-by-topic format. You also get hundreds of examples, solved problems, and practice exercises to test your skills. . . This Schaum's Outline gives you. . Practice problems with full explanations that reinforce knowledge. Coverage of the most up-to-date developments in your course field. In-depth review of practices and applications. . . Fully compatible with your classroom text, Schaum's highlights all the important facts you need to know. Use Schaum's to shorten your study time-and get your best test scores!. . Schaum's Outlines-Problem Solved.. . .

AC Electrical Circuit Analysis - Mehdi Rahmani-Andebili 2021-01-04
This study guide is designed for students taking courses in electrical circuit analysis. The textbook includes examples, questions, and exercises that will help electrical engineering students to review and sharpen their knowledge of the subject and enhance their performance in the classroom. Offering detailed solutions, multiple methods for solving problems, and clear explanations of concepts, this hands-on guide will improve student's problem-solving skills and basic understanding of the topics covered in electric circuit analysis courses. Exercises cover a wide selection of basic and advanced questions and problems Categorizes and orders the problems based on difficulty level, hence suitable for both knowledgeable and under-prepared students Provides detailed and instructor-recommended solutions and methods, along with clear explanations Can be used along with the core textbooks in AC circuit analysis and advanced electrical circuit analysis

Basic Electrotechnology - R A Ashen 2016-07-29
BASIC Electrotechnology discusses the applications of Beginner's All-purpose Symbolic Instruction Code

(BASIC) in engineering, particularly in solving electrotechnology-related problems. The book is comprised of six chapters that cover several topics relevant to BASIC and electrotechnology. Chapter 1 provides an introduction to BASIC, and Chapter 2 talks about the use of complex numbers in a.c. circuit analysis. Chapter 3 covers linear circuit analysis with d.c. and sinusoidal a.c. supplies. The book also discusses the elementary magnetic circuit theory. The theory and performance of two winding transformers from an equivalent circuit approach are also tackled. The last chapter covers the electromechanical energy conversion. The text will be of great use to undergraduate students of electrical engineering.

Understandable Electric Circuits - Meizhong Wang 2010-05-28
Understandable Electric Circuits book provides an understandable and effective introduction to the fundamentals of DC/AC circuits.

AC Machine Systems - Jingde Gao 2010-07-07
"AC Machine Systems" stresses both analysis methods and operating performances of AC machine systems, including variable speed drive system of AC machines with power electronics and control devices, power energy system composed of AC machines and power lines, special machine system with special machines and special loads, electric machine system consisting of AC machines and excitation devices. Based on a single coil, the Multi-Loop Theory is thoroughly described, and examples of how to use the new approach are presented. This book provides a new way for analyzing the AC machine systems. This book is designed for the researchers and postgraduates in the field of electric machines and control. It's also a reference book for related technicians. This book is written in memory of Professor Jingde Gao, past-president of Tsinghua University, Member of Chinese Academy of Sciences. Another two authors, Linzheng Zhang and Xiangheng Wang both are Professors in Electrical Engineering Dept. of Tsinghua University.

Electric Circuit Analysis - Charles J. Monier 2000
This book establishes a clear relationship between the basic principles of electric circuit analysis and the problem-solving procedures for analyzing electric currents. It contains traditional topics in electric circuit analysis along with: matrix methods for solving systems of algebraic equations for simultaneous solutions, derivatives and integrals, differential equations, and Laplace transformers. Chapter titles Ohm's Law and Resistance; Kirchhoff's Laws and Resistor Combinations; Basic Analysis Tools; Numerical Methods; Multi-Loop Circuits; Network Theorems; The Operational Amplifier and Basic Measuring Devices; Capacitors; Inductors; Mathematics for ac Circuits; Network Theorems Applied to ac Circuits; Two Port Networks; and Three Phase Circuits. A reference for professionals in technology related industries.

Short-Circuits in AC and DC Systems - J. C. Das 2017-10-24
This book provides an understanding of the nature of short-circuit currents, current interruption theories, circuit breaker types, calculations according to ANSI/IEEE and IEC standards, theoretical and practical basis of short-circuit current sources, and the rating structure of switching devices. The book aims to explain the nature of short-circuit currents, the symmetrical components for unsymmetrical faults, and matrix methods of solutions, which are invariably used on digital computers. It includes innovations, worked examples, case studies, and solved problems.

Basic AC Circuits - Stanley R. Fulton 1981
This is the step-by-step approach for beginners. This self-paced individualized learning tool covers concepts, terms, and the mathematics required to understand AC circuit problems. It has been designed to improve analysis techniques for prediction and control development. designed to improve analysis techniques for prediction and control development features detailed objectives that begin each lesson

Introductory Circuit Analysis, Global Edition - Robert L. Boylestad 2015-08-18
"For courses in DC/AC circuits: conventional flow " The Latest Insights in Circuit Analysis "Introductory Circuit Analysis," the number one acclaimed text in the field for over three decades, is a clear and interesting information source on a complex topic. The Thirteenth Edition contains updated insights on the highly technical subject, providing readers with the most current information in circuit analysis. With updated software components and challenging review questions at the end of each chapter, this text engages readers in a profound understanding of Circuit Analysis.

Introduction to Circuit Analysis and Design - Tildon H. Glisson 2011-02-18
Introduction to Circuit Analysis and Design takes the view that circuits have inputs and outputs, and that

relations between inputs and outputs and the terminal characteristics of circuits at input and output ports are all-important in analysis and design. Two-port models, input resistance, output impedance, gain, loading effects, and frequency response are treated in more depth than is traditional. Due attention to these topics is essential preparation for design, provides useful preparation for subsequent courses in electronic devices and circuits, and eases the transition from circuits to systems.

University Physics - Samuel J. Ling 2016-09-29

"University Physics is a three-volume collection that meets the scope and sequence requirements for two- and three-semester calculus-based physics courses. Volume 1 covers mechanics, sound, oscillations, and waves. This textbook emphasizes connections between theory and application, making physics concepts interesting and accessible to students while maintaining the mathematical rigor inherent in the subject. Frequent, strong examples focus on how to approach a problem, how to work with the equations, and how to check and generalize the result."--Open Textbook Library.

DC Electrical Circuit Analysis - Mehdi Rahmani-Andebili 2020-10-09

This study guide is designed for students taking courses in electrical circuit analysis. The book includes examples, questions, and exercises that will help electrical engineering students to review and sharpen their knowledge of the subject and enhance their performance in the classroom. Offering detailed solutions, multiple methods for solving problems, and clear explanations of concepts, this hands-on guide will improve student's problem-solving skills and basic understanding of the topics covered in electric circuit analysis courses.

Advanced Electrical Circuit Analysis - Mehdi Rahmani-Andebili 2021-07-21

This study guide is designed for students taking advanced courses in electrical circuit analysis. The book includes examples, questions, and exercises that will help electrical engineering students to review and sharpen their knowledge of the subject and enhance their performance in the classroom. Offering detailed solutions, multiple methods for solving problems, and clear explanations of concepts, this hands-on guide will improve student's problem-solving skills and basic understanding of the topics covered in electric circuit analysis courses.

ELECTRICAL CIRCUIT ANALYSIS - MAHADEVAN, K. 2018-01-01

The book, now in its Second Edition, presents the concepts of electrical circuits with easy-to-understand approach based on classroom experience of the authors. It deals with the fundamentals of electric circuits, their components and the mathematical tools used to represent and analyze electrical circuits. This text guides students to analyze and build simple electric circuits. The presentation is very simple to facilitate self-study to the students. A better way to understand the various aspects of electrical circuits is to solve many problems. Keeping this in mind, a large number of solved and unsolved problems have been included. The chapters are arranged logically in a proper sequence so that successive topics build upon earlier topics. Each chapter is supported with necessary illustrations. It serves as a textbook for undergraduate engineering students of multiple disciplines for a course on 'circuit theory' or 'electrical circuit analysis' offered by major technical universities across the country. SALIENT FEATURES • Difficult topics such as transients, network theorems, two-port networks are presented in a simple manner with numerous examples. • Short questions with answers are provided at the end of every chapter to help the students to understand the basic laws and theorems. • Annotations are given at appropriate places to ensure that the students get the gist of the subject matter clearly. NEW TO THE SECOND EDITION • Incorporates several new solved examples for better understanding of the subject • Includes objective type questions with answers at the end of the chapters • Provides an appendix on 'Laplace Transforms'

Fundamentals of Electronics - David L. Terrell 2000

This introductory text covers basic electronics and the behavior of passive components, circuit analysis and systematic troubleshooting. The analytical methods used are strongly based on Ohm's and Kirchoff's Laws. Mathematics are used for analysis, but only after a solid, intuitive understanding of circuit or device operation has been established. With a heavy emphasis on critical thinking over rote memorization, and the coverage of state of the art technology, this text truly prepares students to use and apply the knowledge they acquire.ALSO AVAILABLELab Manual, ISBN: 0-8273-5342-1INSTRUCTOR SUPPLEMENTS CALL CUSTOMER SUPPORT TO ORDERInstructor's Resource Kit, ISBN: 0-7668-0655-3 Instructor's Manual,

ISBN: 0-8273-5341-3

AC Circuit Basics - Prasun Barua 2022-08-18

Welcome to AC Circuit Basics! This is a nonfiction science book which contains various topics on basics of AC circuits. Full form of AC is Alternating Current. AC circuits are powered by alternating source, either voltage or current. Electric current periodically reverses directions and changes its magnitude continuously in Alternating Current (AC). It is used for industrial and domestic purposes. This book contains various topics like Theory Of AC Waveform And AC Circuit, Sinusoidal Waveforms, Phase Difference And Phase Shift, Phasor Diagrams And Phasor Algebra, Complex Numbers And Phasors, AC Resistance And Impedance, AC Inductance And Inductive Reactance, AC Capacitance And Capacitive Reactance, Analysis Of Series RLC Circuit, Analysis Of Parallel RLC Circuit, Series Resonance Circuit, Parallel Resonance Circuit, RMS Voltage, Average Voltage, Reactive Power, Harmonics, Passive Components In AC Circuits, Power In AC Circuits, Power Triangle And Power Factor, Power Factor Correction and Impedance And Complex Impedance. This is the first edition of the book. Thanks for reading the book.

Circuit Analysis I - Steven T. Karris 2003

This introduction to the basic principles of electrical engineering teaches the fundamentals of electrical circuit analysis and introduces MATLAB - software used to write efficient, compact programs to solve mechanical engineering problems of varying complexity.

Electronics and Circuit Analysis Using MATLAB - John Okyere Attia 2018-10-08

The use of MATLAB is ubiquitous in the scientific and engineering communities today, and justifiably so. Simple programming, rich graphic facilities, built-in functions, and extensive toolboxes offer users the power and flexibility they need to solve the complex analytical problems inherent in modern technologies. The ability to use MATLAB effectively has become practically a prerequisite to success for engineering professionals. Like its best-selling predecessor, Electronics and Circuit Analysis Using MATLAB, Second Edition helps build that proficiency. It provides an easy, practical introduction to MATLAB and clearly demonstrates its use in solving a wide range of electronics and circuit analysis problems. This edition reflects recent MATLAB enhancements, includes new material, and provides even more examples and exercises. New in the Second Edition: Thorough revisions to the first three chapters that incorporate additional MATLAB functions and bring the material up to date with recent changes to MATLAB A new chapter on electronic data analysis Many more exercises and solved examples New sections added to the chapters on two-port networks, Fourier analysis, and semiconductor physics MATLAB m-files available for download Whether you are a student or professional engineer or technician, Electronics and Circuit Analysis Using MATLAB, Second Edition will serve you well. It offers not only an outstanding introduction to MATLAB, but also forms a guide to using MATLAB for your specific purposes: to explore the characteristics of semiconductor devices and to design and analyze electrical and electronic circuits and systems.

Basic Circuit Analysis - H Michael Thomas 2012-12-19

This is a non-calculus based circuit analysis text that can be offered in the first term. It could also be used by students as supplementary material for self study and as an additional source of information. Problem solutions are provided for all the problems in the book in order to provide the student with an extensive source of worked examples. Both DC and AC steady state circuit analysis are covered by introducing circuit analysis concepts with DC circuits containing sources and resistors using simpler math and then expanding the analysis to AC circuits containing sinusoidal sources, resistors, capacitors, and inductors using more complex math. Topics such as series, parallel, and series/parallel circuits, Ohm's law, Kirchhoff's voltage and current laws, voltage and current divider rules, superposition, Thevenin and Norton equivalent circuits, Pi-T circuit transformations, nodal voltage analysis method, frequency analysis, and Bode plots are covered.

AC Electrical Circuits - James Fiore 2018-07-23

An essential resource for both students and teachers alike, this AC Electrical Circuits Workbook contains over 500 problems spread across ten chapters. Each chapter begins with an overview of the relevant theory and includes exercises focused on specific kinds of circuit problems such as Analysis, Design, Challenge and Computer Simulation. An Appendix offers the answers to the odd-numbered Analysis and Design exercises. Chapter topics include series, parallel, and series-parallel RLC circuits; analysis techniques such

as superposition, source conversions, mesh analysis, nodal analysis, Thévenin's and Norton's theorems, and delta-wye conversions; plus series and parallel resonance, dependent sources, polyphase power, magnetic circuits, and more. This is the print version of the on-line OER.

Applications of NI Multisim in AC Circuit Analysis - Basel Korj 2019-03-02
Consisting of multiple experiments covering multiple subjects regarding alternating current circuits, this book aims to spread knowledge and spark discussion with its readers. The book will cover each experiment theoretically, understand its background and verify statements made using NI Multisim 14.1. The book is filled with easy to understand circuit diagrams built in iCircuit for better understanding of the topics at hand. There are two chapters covering six experiments, three each, these include: - Experiment 1, Transient Analysis of RC Circuit - Experiment 2, Transient Analysis of RL Circuit - Experiment 3, Transient Analysis of RLC Circuit - Experiment 4, Superposition Theory - Experiment 5, Resonance - Experiment 6, Two Port Networks This book will be helpful for future electrical and electronic engineering students and hobbyists looking to better integrate their knowledge of electrical theory with modern simulation software that pushes for further possibilities.

Basic AC Circuits - Clay Rawlins 2000-09-28
Covers electronics concepts, terms and the mathematics required to understand AC circuit problems.

Passive AC Circuits: An Introduction to AC Power and Applications - J.R. Lambert 2014

Basic Electric Circuit Theory - Isaak D. Mayergoyz 2012-12-02
This is the only book on the market that has been conceived and deliberately written as a one-semester text on basic electric circuit theory. As such, this book employs a novel approach to the exposition of the material in which phasors and ac steady-state analysis are introduced at the beginning. This allows one to use phasors in the discussion of transients excited by ac sources, which makes the presentation of transients more comprehensive and meaningful. Furthermore, the machinery of phasors paves the road to the introduction of transfer functions, which are then used in the analysis of transients and the discussion of Bode plots and filters. Another salient feature of the text is the consolidation into one chapter of the material concerned with dependent sources and operational amplifiers. Dependent sources are introduced as linear models for transistors on the basis of small signal analysis. In the text, PSpice simulations are prominently featured to reinforce the basic material and understanding of circuit analysis. Key Features * Designed as a comprehensive one-semester text in basic circuit theory * Features early introduction of phasors and ac steady-state analysis * Covers the application of phasors and ac steady-state analysis * Consolidates the material on dependent sources and operational amplifiers * Places emphasis on connections between circuit theory and other areas in electrical engineering * Includes PSpice tutorials and examples * Introduces the design of active filters * Includes problems at the end of every chapter * Priced well below similar books designed for year-long courses

Circuit Analysis for Power Engineering Handbook - Arieh L. Shenkman 2012-12-06
The study of circuits is the foundation on which most other courses in the electrical engineering curriculum are based. For this reason the first course in circuit analysis must be appropriate to the succeeding specializations, which may be classified into two groups. One is a specialization in electro nics, microelectronics, communications, computers etc. , or so-called low current, low-voltage engineering. The other is in power electronics, power systems, energy conversion devices etc. , or so-called high-current, high voltage engineering. It is evident that although there are many common teaching topics in the basic course of circuit analysis, there are also certain differences. Unfortunately most of the textbooks in this field are written from the 'electronic engineer's viewpoint', i. e. with the emphasis on low current systems. This brought the author to the conclusion that there is a definite disad vantage in not having a more appropriate book for the specializations in high-current, high-voltage engineering. Thus the idea for this book came into being. The major feature distinguishing this book from others on circuit analysis is in delivering the material with a very strong connection to the specializations in the field of power systems, i. e. in high-current and high voltage engineering. The author believes that this emphasis gives the reader more opportunity for a better understanding and practice of the material which is relevant for power system network analysis, and to prepare students for their further specializations.

Circuit Analysis - Leonard J. Tung 2001
This volume is intended as a textbook for a first course in electrical engineering. It is divided into two parts, for a two-semester coverage. The first part deals with circuit elements, resistive circuits, circuit theorems, circuit topology, and the state-variable method. The presentation of the state-variable method is a special feature. The authors believe that the natural way to analyze RLC circuits is to use the state-variable method rather than second- or high-order ordinary differential equations. By choosing capacitor voltages and inductor currents in an RLC circuit as state variables, the so-called state equations can by systematically obtained through network topology. Of particular interest is the approach employing Thevenin's theorem and Norton's theorem to find state equations without using circuit topology. The second part of the book covers sinusoidal stead-state analysis, two-port networks, the Fourier series, the Fourier transform, and the Laplace transform. Great effort has been devoted to presenting the subjects of the Fourier series, the Fourier transform, and the Laplace transform with many practical circuits. Thus, we hope that the reader will be better motivated to learn rather abstract concepts such as complex frequency and frequency response.

Electric Circuits AC/DC - Charles I. Hubert 1982

Circuit Analysis with Multisim - David Báez-López 2011
This book is concerned with circuit simulation using National Instruments Multisim. It focuses on the use and comprehension of the working techniques for electrical and electronic circuit simulation. The first chapters are devoted to basic circuit analysis. It starts by describing in detail how to perform a DC analysis using only resistors and independent and controlled sources. Then, it introduces capacitors and inductors to make a transient analysis. In the case of transient analysis, it is possible to have an initial condition either in the capacitor voltage or in the inductor current, or both. Fourier analysis is discussed in the context of transient analysis. Next, we make a treatment of AC analysis to simulate the frequency response of a circuit. Then, we introduce diodes, transistors, and circuits composed by them and perform DC, transient, and AC analyses. The book ends with simulation of digital circuits. A practical approach is followed through the chapters, using step-by-step examples to introduce new Multisim circuit elements, tools, analyses, and virtual instruments for measurement. The examples are clearly commented and illustrated. The different tools available on Multisim are used when appropriate so readers learn which analyses are available to them. This is part of the learning outcomes that should result after each set of end-of-chapter exercises is worked out. Table of Contents: Introduction to Circuit Simulation / Resistive Circuits / Time Domain Analysis -- Transient Analysis / Frequency Domain Analysis -- AC Analysis / Semiconductor Devices / Digital Circuits

Introductory Circuit Analysis - Robert L. Boylestad 2000
THE most widely acclaimed introduction to circuit analysis for more than three decades, this book guides readers to a solid foundation in the basics of ac/dc circuits, specific theorems, and currently used analysis software (e.g., PSpice (Windows) Version 8, Addendum-Or CAD PSpice (Windows); BASIC MathCAD TI86 Calculator). It features exceptionally clear explanations and descriptions, step-by-step examples, and practical applications. Current and Voltage. Resistance. Ohm's Law, Power, and Energy. Series Circuits. Parallel Circuits. Series-Parallel Networks. Methods of Analysis and Selected Topics (dc). Network Theorems. Capacitors. Magnetic Circuits. Inductors. Sinusoidal Alternating Waveforms. The Basic Elements and Phasors. Series and Parallel ac Circuits. Series-Parallel ac Networks. Methods of Analysis and Selected Topics (ac). Network Theorems (ac). Power (ac). Resonance. Decibels, Filters, and Bode Plots. Pulse Waveforms and the -R-C Response. Polyphase Systems. Nonsinusoidal Circuits. Transformers. System Analysis—An Introduction.

Contemporary Electric Circuits - Robert A. Strangeway 2003
This succinct, but thorough treatment of DC and AC circuits analysis effectively communicates the concepts and techniques of circuit analysis with a focused practical style that keeps readers motivated. The book starts at a level that the majority of users can grasp and continues with clear, focused explanations that progress users to the desired level proficiency. Topics covered include the nature of electricity, electrical quantities, series-parallel analysis of DC circuits, AC sinusoidal steady-state signals and resistive circuits,

electric fields and capacitors, magnetic fields and inductors. Also discussed are the response of RL and RC circuits to DC signals, AC sinusoidal steady-state signals, phasors and impedance, series-parallel analysis of AC circuits, power in AC circuits, advanced methods of DC and AC circuit analysis, Thevenin and Norton equivalent circuits, transformers and mutual inductors and circuit analysis with frequency as a variable. For anyone wanting a thorough treatment of DC and AC circuit analysis.