

Electronic Circuit Analysis Jntu

This junior-level electronics text provides a foundation for analyzing and designing analog and digital electronic circuits. Computer analysis and design are recognized as significant factors in electronics throughout the book. The use of computer tools is presented carefully, alongside the important hand analysis and calculations. The author, Don Neamen, has many years experience as an engineering educator and an engineer. His experience shines through each chapter of the book, rich with realistic examples and practical rules of thumb. The book is divided into three parts. Part 1 covers semiconductor devices and basic circuit applications. Part 2 covers more advanced topics in analog electronics, and Part 3 considers digital electronic circuits.

It is divided into two parts covering the topics of Electrical Circuit Analysis for the two semesters of second year. The material presented in this book is outcome of the vast experience the authors gained while teaching the subject to the undergraduate students for a long time. Single Stage Amplifiers Review, Small signal analysis of junction transistor, Frequency response of common emitter amplifier, Common base amplifier, Common collector amplifier, JFET amplifiers, Common drain (CD) amplifier, Common gate amplifier, gain band-width product. Multistage Amplifiers Multi stage amplifiers, Methods of inter stage coupling, n-stage cascaded amplifier, Equivalent circuits, Miller's theorem, Frequency effects, Amplifier analysis, High input resistance transistor circuits, Cascode - transistor configuration, CE-CC amplifiers, Two stage RC coupled JFET amplifier (in common source (CS) configuration), Difference amplifier. High Frequency Transistor Circuits Transistor at high frequencies, Hybrid- common emitter, Transconductance model, Determination of hybrid- conductances, Variation of Hybrid parameters with $|I_C|$, $|V_{CE}|$ and temperature. The parameters f_T , expression for f , Current gain with resistance load, CE short circuit current gain, Hybrid - (π) parameters, Measurement of f_T variation of Hybrid- parameters with Voltage, Current and temperature, Design of high frequency amplifier. Power Amplifiers Class A power amplifier, Maximum value of efficiency of class a amplifier, Transformer coupled amplifier, Transformer coupled audio amplifier, Push pull amplifier, Complimentary symmetry circuits (Transformer less class B power amplifier), Phase inverters, Class D operation, Class S operation, Heat sinks. Tuned Amplifiers - I Single tuned capacitive coupled amplifier, Tapped single tuned capacitance coupled amplifier, Single tuned transformer coupled or inductively coupled amplifier, CE double tuned amplifier, Application of tuned amplifiers. Tuned Amplifiers - II Stagger tuning, Stability considerations, Tuned Class B and Class C amplifiers, Wideband amplifiers, Tuned amplifiers. Voltage Regulators Terminology, Basic regulator circuit, Short circuit protection, Current limiting, Specifications of voltage regulator circuits, Voltage multipliers. Switching and IC Voltage Regulators IC 723 voltage regulators and three terminal IC regulators, DC to DC converter, Switching regulators, Voltage Multipliers, UPS, SMPS.

This book covers the syllabus of various universities on electrical Circuits and in particular, the syllabus of JNTU w.e.f 2009. This book is written in very simple language and is therefore easy to follow. The book presents the systematic presentation of basic concepts and techniques involved in circuit analysis with illustrated examples. Previous 'Examination Solved Questions' and Objective Questions have been given in the relevant chapters and good numbers of example have also been given in exercise for students to practice.

There are eight chapters, useful appendix and solved question papers in the book. Basic digital communication, line codes and sampling methods are presented at the beginning. Digital pulse modulation techniques such as PCM, DPCM, DM, ADM are presented. Continuous wave digital modulation methods such as BPSK, DPSK, QPSK, QAM, BFSK and OOK are presented with mathematical analysis of

modulators and receivers. Issues related to baseband transmission such as ISI, Nyquist pulse shaping criterion, optimum reception, matched filter and eye patterns are also discussed. Concepts of information theory such as discrete memoryless channels, mutual information, Shannon's theorems on source coding are also presented. Coding using linear block codes, cyclic codes and convolutional coding is also discussed. Secured communication using spread spectrum modulation is also discussed in detail.

The book presents a detailed exposition of the basic facets of electrical and electronics engineering. It begins with a general introduction to the basic concepts in electrical engineering and goes on to explain electrostatic fields and batteries. The basic concepts and techniques in circuit analysis are explained next. This is followed by a detailed exposition of electric machines which includes discussion of transformers and synchronous motors. Electrical measurements and instruments are explained next which is followed by an exposition of basic electronics. SI units are consistently used throughout the book. Solved examples, practice problems and objective questions are presented in each chapter.

This book on network analysis is generally one of the basic texts a student of engineering refers to. While currently available books on the subject adequately cover the different facets the authors feel that there is still a need for a book which provides all the necessary material required by the students of electrical and electronic engineering at one place for a solid foundation in the area of Circuit Theory. The purpose of writing this book is therefore to fulfil this requirement. The material presented in this book can be covered adequately in two semesters. The authors have tried to present the concepts of network analysis in a lucid way so that a student reading this book will be able to understand the subject easily. No prerequisites other than a rudimentary knowledge of physics including the concepts of electricity and magnetism are necessary.

Designed for the third-semester students of EEE stream of JNTU Kakinada, Electrical Circuit Analysis-I is a blend of simple language along with clear illustrations, helping students gain a firm grasp over the basic principles of electric circuits. It also enhances their understanding of circuits and the ability to design them practically.

Analog Circuit Design

The book covers all the aspects of theory, analysis, and design of Electronic Circuits for the undergraduate course. It provides all the essential information required to understand the operation and perform the analysis and design of a wide range of electronic circuits, including MOSFET as a switching and amplifier circuits, feedback amplifiers, oscillators, voltage regulators, operational amplifiers and its applications, DAC, ADC, and Phase-Locked Loop. The book is divided into four parts. The first part focuses on the fundamental concepts of MOSFET, MOSFET construction, characteristics, and circuits - as a switch, as a resistor/diode, as an amplifier, and current sink and source circuits. The second part focuses on the analysis of voltage-series and current-series feedback amplifiers. It also explains the Barkhausen criterion for oscillation and incorporates the detailed analysis of Wien bridge and phase-shift oscillators. The third part is dedicated to the basics of op-amp and a discussion of a variety of its applications. The fourth part focuses on the V to I and I to V Converters, DAC and ADC, and Phase-Locked Loop. The book uses straightforward and lucid language to explain each topic. The book provides the logical method of describing the various complicated issues and stepwise methods to make understanding easy. The variety of solved examples is the feature of this book. The book explains the subject's philosophy, which makes understanding the concepts evident and makes the subject more interesting.

The Use Of Digital Circuits Is Increasing In All Disciplines Of Engineering. Consequently Students Need To Have An In-Depth Knowledge On

Them. Digital Circuits And Design Is A Textbook Dealing With The Basics Of Digital Technology Including The Design Asp

The revision of this extremely popular text, Circuits and Networks: Analysis and Synthesis, comes at a time when the industry is increasingly looking to hire engineers who are able to display learning outcomes. The book has been revised based on internationally accepted Learning Outcomes required from a course. Additionally, key pedagogical aids, such as questions from previous year question papers are added afresh to further help students in preparing for this course and its examinations. For the tech savvy, the practice of MCQs in a digital and randomized environment will provide thrill. Salient Features: - Content revised as per internationally accepted learning outcomes - 461 Frequently asked questions derived from important previous year question papers - Features like Definition and Important Formulas are highlighted within the text

This book on "Electronic Circuit Analysis" explores the concepts of Circuit Analysis in a simple and easy-to-understand manner. This book is designed specifically to cater to the needs of fourth semester students of B.Tech in Electronics and Communications Engineering, JNTU. Written in a lucid language, this book offers a crisp presentation of all the topics supported by adequate examples. A simplified approach to enable ease of understanding of the concepts, adequate illustrations, examples and practice problems have also been provided in all the chapters. Salient Features: ? Comprehensive coverage with lucid presentation style ? Rich exam-oriented pedagogy ? Solved Numerical Examples within chapters ? Unsolved Review Questions ? Multi-choice Questions

Laplace Transforms, Numerical Methods & Complex Variables

Focussing on micro- and nanoelectronics design and technology, this book provides thorough analysis and demonstration, starting from semiconductor devices to VLSI fabrication, designing (analog and digital), on-chip interconnect modeling culminating with emerging non-silicon/ nano devices. It gives detailed description of both theoretical as well as industry standard HSPICE, Verilog, Cadence simulation based real-time modeling approach with focus on fabrication of bulk and nano-devices. Each chapter of this proposed title starts with a brief introduction of the presented topic and ends with a summary indicating the futuristic aspect including practice questions. Aimed at researchers and senior undergraduate/graduate students in electrical and electronics engineering, microelectronics, nanoelectronics and nanotechnology, this book: Provides broad and comprehensive coverage from Microelectronics to Nanoelectronics including design in analog and digital electronics. Includes HDL, and VLSI design going into the nanoelectronics arena. Discusses devices, circuit analysis, design methodology, and real-time simulation based on industry standard HSPICE tool. Explores emerging devices such as FinFETs, Tunnel FETs (TFETs) and CNTFETs including their circuit co-designing. Covers real time illustration using industry standard Verilog, Cadence and Synopsys simulations.

This fully updated textbook provides complete coverage of electrical circuits and introduces students to the field of energy conversion technologies, analysis and design. Chapters are designed to equip students with necessary background material in such topics as devices, switching circuit analysis techniques, converter types, and methods of conversion. The book contains a large number of examples, exercises, and problems to help enforce the material presented in each chapter. A detailed discussion of resonant and softswitching dc-to-dc converters is included along with the addition of new chapters covering digital control, non-linear control, and micro-inverters for power electronics applications. Designed for senior undergraduate and graduate electrical engineering students, this book provides students with the ability to analyze and design power electronic circuits used in various industrial applications.

This book Basic Electrical and Electronics Engineering has a perfect blend of focused content and complete coverage. Simple, easy-to-

understand and difficult-jargon-free text enhances the utility of the book and makes it a lasting resource for students and instructors. ? Comprehensive coverage with lucid presentation style ? Rich exam-oriented pedagogy ? Solved numerical examples within chapters ? Unsolved review questions ? Multiple-choice questions

In system design (in particular, industrial control systems), there is, and has been, a continuous need to sense real-world analog quantities (such as temperature, pressure, or humidity), make computations with them, and then perform some action with the result. In today's systems, the computations need to be made at increased speeds and the accuracy with which the computations must be made, even as the speed increases, must be the same or higher as time progresses. The advent of the microcontroller, and its extensive use in all types of control applications, many of them battery powered, has led to new control system design approaches. Rather than computing using analog quantities, the analog quantities are sensed, conditioned, and converted to digital, processed digitally, and then converted back to an analog output, which is then used to perform the necessary output action. This practical textbook covers the latest techniques in microcontroller-based control system design. It is aimed at engineering students and engineers new to working with microcontrollers. It covers the fundamentals of: 1. Sensors and the electrical signals they output. 2. The design and application of the electronic circuits that receive and condition (change or modify) the sensor analog signals. 3. The design and application of the circuits that convert analog signals to digital and digital signals to analog. 4. The makeup and operation of a microcontroller and how to program it. 5. The application of electronic circuits for system power control. The book, written by an experienced microcontroller engineer and textbook author, is suitable for community college students, technical school students, technicians and engineers just being introduced to microcontroller system design. It is an introductory book, focusing on real-world implementation of a basic control system, with real-world circuit examples. Readers will find clearly written discussion coupled with lots of illustrations. They will also find worked-out examples that illustrate principles within each chapter and quizzes to aid understanding. Besides these specifics, a hands-on project, suitable for an electronics microcontroller laboratory course, using the popular and low-cost TI MSP430 microcontroller, is discussed in detail. The accompanying CD-ROM contains microcontrollers application notes, code for the software examples, and problem solutions. * Seasoned Texas Instruments designer provides a ground-up perspective on embedded control systems * Pedagogical style provides a self-learning approach with examples, quizzes and review features * CD-ROM contains source code and more!

Designed as a text for the students of various engineering streams such as electronics/electrical engineering, electronics and communication engineering, computer science and engineering, IT, instrumentation and control and mechanical engineering, this well-written text provides an introduction to electronic devices and circuits. It introduces to the readers electronic circuit analysis and design techniques with emphasis on the operation and use of semiconductor devices. It covers principles of operation, the characteristics and applications of fundamental electronic devices such as p-n junction diodes, bipolar junction transistors (BJTs), and field effect transistors (FETs), and special purpose diodes and transistors. In its second edition, the book includes a new chapter on "special purpose devices". What distinguishes this text is that it explains the concepts and applications of the subject in such a way that even an average student will be able to understand working of electronic devices, analyze, design and simulate electronic circuits. This comprehensive book provides: • A large number of solved examples. • Summary highlighting the important points in the chapter. • A number of Review Questions at the end of each chapter. • A fairly large number of unsolved problems with answers.

Electrical Circuit Analysis-1 has been designed for the 3rd semester students of EEE in JNTU Kakinada. Full syllabus compatibility, simple

approach, lucid and easy to understand language are some of the unique features of this book. The crisp presentation of topics makes it easier for the student to develop a sound understanding of the basic principles of electrical circuits.

The knowledge of switchgear and apparatus protection plays an important role in the power system. The book is structured to cover the key aspects of the course Switchgear & Protection for undergraduate students. The book starts with the discussion of basics of protective relaying. The book includes comprehensive coverage of faults and analysis of symmetrical and unsymmetrical faults. The book explains the protection against overvoltage, lightning arresters and power system earthing. The book covers the characteristics of various types of relays such as electromagnetic relays, induction type relays, directional relays, differential relays, thermal relays, frequency relays and negative sequence relays. The detailed discussion of distance relays and static relays is also included in the book. The book also covers the various possible faults and methods of protection of transformers, generators, motors, busbars and transmission lines. The book further explains the theory of circuit interruption and various arc interruption methods. Finally, the book incorporates various types of circuit breakers, circuit breaker ratings and testing of circuit breakers. The book uses plain and lucid language to explain each topic. The book provides the logical method of explaining the various complicated topics and stepwise methods to make the understanding easy. Each chapter is well supported with necessary illustrations and self-explanatory diagrams. The book explains the philosophy of the subject which makes the understanding of the concepts very clear and makes the subject more interesting.

Analog and Digital Electronics is designed specifically to cater to the needs of third Semester students of B.Tech. in Computer Science and Engineering, JNTU. The book has a perfect blend of focused content and complete coverage as per the syllabus. Simple, easy-to-understand and difficult-jargon-free text elucidates the fundamentals of analog and digital electronics. Several solved examples, including circuit diagrams and adequate questions further help students understand and apply the concepts. Few Highlights: • Comprehensive syllabus coverage as per latest pattern • Lucid presentation style • Rich pool of pedagogy: Illustrative Examples and Review Questions

• This book is exclusively designed for the first-year engineering students of Jawaharlal Nehru Technological University, Kakinada studying the 'Network Analysis' course in their second semester. The primary goal of this text is to enable the student have a firm grasp over basic principles of Network Analysis, and develop an understanding of circuits and the ability to design practical circuits that perform the desired operations. Emphasis is placed on basic laws, theorems and techniques which are used to develop a working knowledge of the methods of analysis used most frequently in further topics of electrical engineering. Each chapter begins with principles and theorems together with illustrative and other descriptive material. A large number of solved examples showing students the step-by-step processes for applying the techniques are presented in the text. Several questions in worked examples have been selected from university question papers. As an aid to both the instructor and the student, objective questions and tutorial problems provided at the end of each chapter progress from simple to complex. Answers to selected problems are given to instil confidence in the reader. Due care is taken to see that the reader can easily start learning the concepts of Network Analysis without prior knowledge of mathematics. Salient Features • 100% coverage of JNTU Kakinada latest syllabus • Individual topics very well supported by solved examples • Roadmap to the syllabus provided for systematic reading of the text • University questions incorporated at appropriate places in the text • Excellent pedagogy: • Solved Examples: 490 • Practice Problems: 214 • Objective Type Questions: 191 • Illustrations: 915

Electronic Circuit Analysis" by Salivahanan" has been designed keeping in mind the ECE students who take up their fourth semester at JNTU Kakinada. This tailor made book covers a complete spectra of topics from the basic concepts of Electronics such as Amplifiers,

Oscillators to tuned amplifiers. Salient Feature: • Completely in sync with the new syllabus of JNTU Kakinada (2010 Regulations) • Simple language for easy understanding of concepts substantiated by clear illustrations. • Exhaustive Pedagogy: o Solved Questions: 125 o Review Questions: 230 o Objective Type Questions: 300 o True/ False Questions: 218

The importance of Electrical Circuit Analysis is well known in the various engineering fields. The book provides comprehensive coverage of mesh and node analysis, various network theorems, analysis of first and second order networks using time and Laplace domain, steady state analysis of a.c. circuits, coupled circuits and dot conventions, network functions, resonance and two port network parameters. The book starts with explaining the network simplification techniques including mesh analysis, node analysis and source shifting. Then the book explains the various network theorems and concept of duality. The book also covers the solution of first and second order networks in time domain. The sinusoidal steady state analysis of electrical circuits is also explained in the book. The book incorporates the discussion of coupled circuits and dot conventions. The Laplace transform plays an important role in the network analysis. The chapter on Laplace transform includes properties of Laplace transform and its application in the network analysis. The book includes the discussion of network functions of one and two port networks. The book incorporates the detailed discussion of resonant circuits. The book covers the various aspects of two port network parameters along with the conditions of symmetry and reciprocity. It also derives the interrelationships between the two port network parameters. The book uses plain and lucid language to explain each topic. Each chapter gives the conceptual knowledge about the topic dividing it in various sections and subsections. The book provides the logical method of explaining the various complicated topics and stepwise methods to make the understanding easy. The variety of solved examples is the feature of this book. The book explains the philosophy of the subject which makes the understanding of the subject very clear and makes the subject more interesting.

Electromagnetism is the most pervasive force that exists in nature. Electromagnetic field theory is the study of characteristics of electric, magnetic and combined fields. The book is designed specifically to cater the needs of fourth semester students of B.Tech. in Electronics and Communications Engineering, JNTU. Simple, easy-to-understand and difficult-jargon-free text elucidates the fundamentals of the subject area and makes it a lasting resource for the students. Salient Features: ? Comprehensive coverage with lucid presentation style ? Rich exam-oriented pedagogy ? Unsolved review questions ? Objective-type questions

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'

