

Electrical Engineering Sem 1 Gtu

Electrical Circuit Theory and Technology is a fully comprehensive text for courses in electrical and electronic principles, circuit theory and electrical technology. The coverage takes students from the fundamentals of the subject, to the completion of a first year degree level course. Thus, this book is ideal for students studying engineering for the first time, and is also suitable for pre-degree vocational courses, especially where progression to higher levels of study is likely. John Bird's approach, based on 700 worked examples supported by over 1000 problems (including answers), is ideal for students of a wide range of abilities, and can be worked through at the student's own pace. Theory is kept to a minimum, placing a firm emphasis on problem-solving skills, and making this a thoroughly practical introduction to these core subjects in the electrical and electronic engineering curriculum. This revised edition includes new material on transients and laplace transforms, with the content carefully matched to typical undergraduate modules. Free Tutor Support Material including full worked solutions to the assessment papers featured in the book will be available at <http://textbooks.elsevier.com/>. Material is only available to lecturers who have adopted the text as an essential purchase. In order to obtain your password to access the material please follow the guidelines in the book.

For Schools and Colleges For Various competitive exams such as MBA (CAT, MAT, XLRI, FMS etc.), GRE, GMAT, Bank PO, RBI, SSC, RRBs, NDA, CDS and LLB Entrance For those who aspire to read and write better

The book is written for an undergraduate course on the 8086 microprocessor and 8051 microcontroller. It provides comprehensive coverage of the hardware and software aspects of 8086 microprocessor and 8051 microcontroller. The book is divided into three parts. The first part focuses on 8086 microprocessor. It teaches you the 8086 architecture, instruction set, Assembly Language Programming (ALP), interfacing 8086 with support chips, memory, and peripherals such as 8251, 8253, 8255, 8259, 8237 and 8279. It also explains the interfacing of 8086 with data converters - ADC and DAC and introduces a traffic light control system. The second part focuses on multiprogramming and multiprocessor configurations, numeric processor 8087, I/O processor 8089 and introduces features of advanced processors such as 80286, 80386, 80486 and Pentium processors. The third part focuses on 8051 microcontroller. It teaches you the 8051 architecture, instruction set, programming 8051 and interfacing 8051 with external memory. It explains timers/counters, serial port, interrupts of 8051 and their programming. It also describes the interfacing 8051 with data converters - ADC and DAC, keyboards, LCDs, LEDs, stepper motors, and sensors.

This book has been designed as per the Mathematics-1 course offered in the first year to the undergraduate engineering students of GTU. It provides crisp but complete explanation of topics which helps in easy understanding of the basic concepts. The systematic approach followed in the book enables readers to develop a logical perspective for solving problems.

S. Chand's Physics, designed to serve as a textbook for students pursuing their engineering degree course, B.E. in Gujarat Technical University. The book is written with the singular objective of providing the students of GTU with a distinct source material as per the syllabus. The philosophy of presentation of the material in the book is based upon decades of classroom interaction of the authors. In each chapter, the fundamental concepts pertinent to the topic are highlighted and the in-between continuity is emphasized. Throughout the book attention is given to the proper presentation of concepts and practical applications are cited to highlight the engineering aspects. A number of problems are solved. New problems are included in order to expedite the learning process of students of all hues and to improve their academic performance. The fundamental concepts are emphasized in each chapter and the details are developed in an easy-to-follow style. Each chapter is divided into smaller parts and sub-headings are provided to make the reading a pleasant journey from one interesting topic to another important topic.

The foremost and primary aim of the book is to meet the requirements of students of Anna University, Bharathidasan University, Mumbai University as well as B.E. / B.Sc of all other Indian Universities.

This comprehensive text offers a detailed treatment of modelling of components and sub-systems for studying the transient and dynamic stability of large-scale power systems. Beginning with an overview of basic concepts of stability of simple systems, the book is devoted to in-depth coverage of modelling of synchronous machine and its excitation systems and speed governing controllers. Apart from covering the modelling aspects, methods of interfacing component models for the analysis of small-signal stability of power systems are presented in an easy-to-understand manner. The book also offers a study of simulation of transient stability of power systems as well as electromagnetic transients involving synchronous machines. Practical data pertaining to power systems, numerical examples and derivations are interspersed throughout the text to give students practice in applying key concepts. This text serves as a well-knit introduction to Power System Dynamics and is suitable for a one-semester course for the senior-level undergraduate students of electrical engineering and postgraduate students specializing in Power Systems. Contents: contents Preface 1. ONCE OVER LIGHTLY 2. POWER SYSTEM STABILITY—ELEMENTARY ANALYSIS 3. SYNCHRONOUS MACHINE MODELLING FOR POWER SYSTEM DYNAMICS 4. MODELLING OF OTHER COMPONENTS FOR DYNAMIC ANALYSIS 5. OVERVIEW OF NUMERICAL METHODS 6. SMALL-SIGNAL STABILITY ANALYSIS OF POWER SYSTEMS 7. TRANSIENT STABILITY ANALYSIS OF POWER SYSTEMS 8. SUBSYNCHRONOUS AND TORSIONAL OSCILLATIONS 9. ENHANCEMENT AND COUNTERMEASURES Index

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.

The comprehensive study of electric, magnetic and combined fields is nothing but electromagnetic engineering. Along with electronics, electromagnetics plays an important role in other branches. The book is structured to cover the key aspects of the course Electromagnetic Field Theory for undergraduate students. The knowledge of vector analysis is the base of electromagnetic engineering. Hence book starts with the discussion of vector analysis. Then it introduces the basic concepts of electrostatics such

as Coulomb's law, electric field intensity due to various charge distributions, electric flux, electric flux density, Gauss's law, divergence and divergence theorem. The book continues to explain the concept of elementary work done, conservative property, electric potential and potential difference and the energy in the electrostatic fields. The detailed discussion of current density, continuity equation, boundary conditions and various types of capacitors is also included in the book. The book provides the discussion of Poisson's and Laplace's equations and their use in variety of practical applications. The chapter on magnetostatics incorporates the explanation of Biot-Savart's law, Ampere's circuital law and its applications, concept of curl, Stoke's theorem, scalar and vector magnetic potentials. The book also includes the concept of force on a moving charge, force on differential current element and magnetic boundary conditions. The book covers all the details of Faraday's laws, time varying fields, Maxwell's equations and Poynting theorem. Finally, the book provides the detailed study of uniform plane waves including their propagation in free space, perfect dielectrics, lossy dielectrics and good conductors. The book uses plain, 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. The variety of solved examples is the feature of this book which helps to inculcate the knowledge of the electromagnetics in the students. 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.

This book is intended as an undergraduate text introducing matrix methods as they relate to engineering problems. It begins with the fundamentals of mathematics of matrices and determinants. Matrix inversion is discussed, with an introduction of the well known reduction methods. Equation sets are viewed as vector transformations, and the conditions of their solvability are explored. Orthogonal matrices are introduced with examples showing application to many problems requiring three dimensional thinking. The angular velocity matrix is shown to emerge from the differentiation of the 3-D orthogonal matrix, leading to the discussion of particle and rigid body dynamics. The book continues with the eigenvalue problem and its application to multi-variable vibrations. Because the eigenvalue problem requires some operations with polynomials, a separate discussion of these is given in an appendix. The example of the vibrating string is given with a comparison of the matrix analysis to the continuous solution. Table of Contents: Matrix Fundamentals / Determinants / Matrix Inversion / Linear Simultaneous Equation Sets / Orthogonal Transforms / Matrix Eigenvalue Analysis / Matrix Analysis of Vibrating Systems

Generation and Utilization of Electrical Energy is a comprehensive text designed for undergraduate courses in electrical engineering. The text introduces the reader to the generation of electrical energy and then goes on to explain how this energy can be effectively utilized for various applications like welding, electric traction, illumination, and electrolysis. The detailed explanations of practical applications make this an ideal reference book both inside and outside the classroom.

The book encompasses the basic understanding and procedures involved in mechanical, electrical and electronic workshops. All the manufacturing processes, such as casting, welding, forming and joining, are detailed in this book with various designs associated with each process. The advanced manufacturing processes, CNC machining, plastic moulding and glass cutting are some other non-conventional processes that are frequently been used in industries and are described in detail. The book also includes workshop sessional where experiments with procedural steps and results for each subject of manufacturing have been provided for better grasp of the subject by the student.

Appropriate for one- or two-semester Advanced Engineering Mathematics courses in departments of Mathematics and Engineering. This clear, pedagogically rich book develops a strong understanding of the mathematical principles and practices that today's engineers and scientists need to know. Equally effective as either a textbook or reference manual, it approaches mathematical concepts from a practical-use perspective making physical applications more vivid and substantial. Its comprehensive instructional framework supports a conversational, down-to-earth narrative style offering easy accessibility and frequent opportunities for application and reinforcement.

Aims of the Book: The foremost and primary aim of the book is to meet the requirements of students pursuing following courses of study: 1. Diploma in Electronics and Communication Engineering (ECE)-3-year course offered by various Indian and foreign polytechnics and technical institutes like City and Guilds of London Institute (CGLI). 2. B.E. (Elect. & Comm.)-4-year course offered by various Engineering Colleges. Efforts have been made to cover the papers: Electronics-I & II and Pulse and Digital Circuits. 3. B.Sc. (Elect.)-3-Year vocationalised course recently introduced by Approach.

This book has been designed as per the Mathematics - 2 course offered in the first year to the undergraduate engineering students of GTU. The book provides in-depth coverage and complete explanation of topics which will help in easy understanding of the basic concepts. The methodical approach followed in the book will enable readers to develop a logical outlook for the course. Salient Features: ? Complete coverage of the GTU syllabus ? Solutions of GTU examination questions within chapters ? Diverse pedagogy o Chapter outline, Points to remember etc. o Solved examples within chapters: 649 o Unsolved problems within chapters: 561

This book is designed for students of GTU studying the course on Environmental Science. Maintaining a holistic approach throughout, the book offers easy and logical comprehension for understanding. Concepts are explained through a variety of illustrations which will enable the students to grasp the subject easily. Highlights: 1. Complete coverage of the new GTU syllabus 2. Pictorial representation of topics for easy retention and understanding 3. Variety of chapter-end questions for students to ace their examinations 4. Additional Solved Gujarat Technical University Examination Questions from previous year

This book is designed based on revised syllabus of Gujarat Technological University, Gujarat (AICTE model curriculum) for undergraduate (B.Tech/BE) students of all branches, those who study Basic Electrical Engineering as one of the subject in their curriculum. The primary goal of this book is to establish a firm understanding of the basic laws of Electric Circuits, Network Theorems, Resonance, Three-phase circuits, Transformers, Electrical Machines and Electrical Installation.

Basic Electrical Engineering S. Chand Publishing

This book contains problems in Electrical Machines & Power Systems (Problems with Solutions). I have used these and other problems in the class room for many years. In most of the solutions I have deliberately avoided giving theoretical explanations, because an average student should know the theory well before attempting to solve any problem. However, in each chapter, I have provided a brief introduction related to the chapter so that students are made aware of the contents of the chapter before reading the problems and their solutions. The introduction related to each chapter contains Objective type Questions and their answers. The introductions contain brief notes on the topics of the chapters and also include Indian Standards for testing and maintenance

of substation, equipments, transformer, overhead lines, underground cables and materials.

This book combines the teaching of MATLAB[®] programming skills with the presentation and development of carefully selected electrical and computer engineering (ECE) fundamentals. This is what distinguishes it from many others: it is directed specifically to ECE concerns. Students will see, quite explicitly, how and why MATLAB is well suited to solve practical ECE problems. For ECE graduates of BS programs, MATLAB programming skills are an increasingly important component in the tool set for competing successfully in the job market. This requires that students start early in their academic studies to learn and apply MATLAB programming skills in their EE and CE curricula.

This book has been written for the students of third semester of electrical engineering of Gujarat Technological University (GTU). It would also be useful for the students of third semester of power electronics branch. The book provides comprehensive knowledge of the DC machines and transformers and has an extended summary in the form of 'Key points to remember', and a large number of solved and unsolved problems. In the exercise, the questions have been presented in accordance with the GTU examination pattern. Key Features • Strictly as per the GTU syllabus • Over 125 descriptive questions • Examinations oriented approach • Includes questions of the last five years of GTU examinations

This book is designed for the 3rd semester gtu engineering students pursuing the probability and statistics (code 3130006). The crisp but complete explanation of topics will help the students easily understand the basic concepts. The tutorial approach (I.E. Teach by example) followed in the text will enable students develop a logical perspective to solving problems.

This book constitutes the refereed proceedings of the 6th IFIP WG 5.5/SOCOLNET Doctoral Conference on Computing, Electrical and Industrial Systems, DoCEIS 2015, held in Costa de Caparica, Portugal, in April 2015. The 54 revised full papers were carefully reviewed and selected from 119 submissions. The papers present selected results produced in engineering doctoral programs and focus on development and application of cloud-based engineering systems.

Research results and ongoing work are presented, illustrated and discussed in the following areas: collaborative networks; cloud-based manufacturing; reconfigurable manufacturing; distributed computing and embedded systems; perception and signal processing; healthcare; smart monitoring systems; and renewable energy and energy-related management, decision support, simulation and power conversion.

Harmonics have always been a problem with industrial loads, but now more and more consumer and commercial power loads are cropping up as sources of harmonic currents. Approaching the problem from both utility and end-user perspectives, Harmonics and Power Systems addresses the most relevant aspects in the generation and propagation of harmonic curr

The book strictly complies with the new syllabus of Gujrat Technological University, Ahmedabad, for B.E. First year of all braches of Engineering. The subject matter is presented in a graded stepwise, easytofollow style. Each chapter includes MulipleChoice Questions,Review Questions and Exercises for easy recapitulation.

Strictly according to the New Syllabus of Gujarat Technology University,Ahmedabad (Common to All Branches of B.E. / B.Tech 1st year)

The subject of power systems has assumed considerable importance in recent years and growing demand for a compact work has resulted in this book. A new chapter has been added on Neutral Grounding.

Power semiconductor devices are discussed in first chapter. SCR, GTO, LASCR, RCT, MCT, characteristics, rating turn-off and turn-on is presented. Power BJT, MOSFET, IGBT, driving circuits, protection and snubber circuits are also discussed. Commutation circuits and series and parallel operation are presented. Single and three phase controlled converters are given in second chapter. Half wave, full wave, midpoint, semiconverters, full converters, dual converters and effect of source inductance is also given. Operation with resistive and inductive load is discussed. Third chapter presents AC voltage controllers and cycloconverters. On-off control, phase control, triac based controllers are given. Cycloconverters and operations with inductive as well as resistive load are discussed. Choppers are given in fourth chapter. Step down, step up, voltage, current and load commutated choppers are given. Classification is also discussed. Last chapter presents inverters. Half bridge, full bridge, quasi square wave, push-pull, thyristorized inverters with resistive and inductive loads are given. Switching techniques for PWM inverters are also given.

This book has been designed as per the Advanced Engineering Mathematics course offered in the third semester to the undergraduate engineering students of GTU. It provides crisp as well as complete explanation of topics which will help in easy understanding of the basic concepts. The systematic approach followed in the book will enable readers to develop a logical perspective for solving problems.

The book is designed to help the first year engineering students in building their concepts in the course on Programming for Problem Solving. It introduces the subject in a simple and lucid manner for a better understanding. It adopts a student friendly approach to the subject matter with many solved examples and unsolved questions, illustrations and well-structured C programs. D. C. CircuitConcept of EMF, P.D. and current, Resistance, Effect of temperature of resistance, resistance-temperature coefficient, Classification of electric network. Ohm's law, Kirchoff's law and their application for network solution, Simplification of network using series and parallel combination and star delta transformation.Magnetic CircuitMagnetic effect of electric current, Law of magnetic force, Magnetic field, Concept of mmf, Magnetic flux, Flux density, Reluctance permeability and field strength and their units. Cross and dot convention current, Simple series and parallel magnetic circuit, Comparison between electric circuit and magnetic circuit, Force on current carrying conductor in magnetic field, Fleming's rules.A. C. FundamentalsRepresentation of an a.c. source polarity of a.c. source, Generation of a.c. voltage, Concept of instantaneous, Peak, Average and r.m.s values cycle, Period, Frequency, Peak factor and form factor phase difference , Phasor representation and indication of phase difference in it. Rectangular and polar representation of phasor.A.C. CircuitStudy of a.c. circuit consisting of purely resistive, Purely inductive, Purely capacitive type and corresponding voltage and current phasor diagram. Concept of reactance. Study of series and parallel circuit consisting resistance, Inductance and capacitance and its phasor, Combination of to develop the concept of impedance, Admittance, Conductance,Susceptance.Necessity of earthing, Its types, Fuses safety precaution in working with electricity, Circuit

and operation of filament lamp. Fluorescent tube, Mercury vapour, Sodium vapour lamp.

The Book Was Organized In The Presented Way To Avoid Unnecessary Repetitions And Particularly Not To Be In Need Of Citing Facts Of Chapters Ahead. This Approach Proved To Be Applicable From The Didactic Standpoint And It Allows A High Density Of Information Without Sacrificing The Easy Access To It. This Way The Level Of Presentation Gets Gradually More And More Demanding Finally Satisfying The Needs Of B.Sc. Students To Make Them Fit For Measurements. Problems Derived From Practice Are Integrated Parts Within The Sequence Of presentation. This Approach Is Of Engineering Nature Rather Than To Present Separate Tutorials. According To The State Of The Art Analog And Digital Instruments Are Equally Important. Quite Often They Are Combined In Measurement Apparatus. So They Should Have Equal Weights. The Practical Background Which Is Carefully Underlaid Throughout Is Paid Credit To By Combining Both Techniques. Even Sophisticated Equipment May Be Made Up Including Sensors For Non-Electrical Quantities. Their Output Voltages Or Currents May Be Transformed, Transferred, Or Otherwise Be Subjected To Certain Operations. This Means At The Same Time To Design Or To Select Special Transducers Or To Place Them Properly Into A Measurement System. To Meet The Challenge Which Derives From Practice Is A Major Goal For The Elaborated Methodology Of The Book Which Also Tries To Satisfy Common Academic Needs Of Other Fields Within The Scope Of Technical Sciences.

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