

## Basic Electrical Engineering By A E Fitzgerald

It has often been experienced that students are required to perform experiments on certain topics before the relevant theory has been taught in the class. A laboratory manual which, in addition to a set of instructions for performing experiments, includes related theory in brief could help students understand experiments better. In response to demand from a large number of states for an appropriate laboratory manual in basic electricity and electrical measurements, the T.T.T.I., Chandigarh, has prepared this manual which has been tried out in various polytechnics and improved based on the feedback. The basic objective of the manual is to encourage students to perform experiments independently and purposefully. The manual organises the information to enable the students to verify known concepts and principles and to follow certain procedures and practices and thereby acquire relevant skills. Detailed instructions for carrying out each experiment along with relevant theory in brief have been given. The objectives for performing an experiment have been included at the beginning of each experiment. A list of questions given at the end of each experiment will help students evaluate his own understanding. The manual also includes guidelines for students and teachers for its effective use. An assessment proforma given at the beginning of the manual may be used by the teachers in evaluating the students. Basic electrical engineering has been written as a core course for all engineering students viz. electronics and communication engineering, computer engineering, civil engineering, mechanical engineering etc. Since this course will normally be offered at the first year level of engineering, the author has made modest effort to give in a concise form, various features of basic electrical engineering using simple language and through solved examples, avoiding the rigorous use of mathematics. The salient features of the book are : \* Steady state analysis of A.C. circuits explained. \* Network theorems explained using typical examples. \* Analysis of 3-phase circuits and measurement of power in these circuits explained. \* Measuring instruments like ammeter, voltmeter, wattmeter and energy meter described. \* Various electrical machines viz. transformers, D.C. machines, single phase and three phase induction motors, synchronous machines, servomotors have been described. \* A brief view of power system including conventional and non-conventional services of electric energy is given. \* Domestic wiring has been discussed. \* Numerous solved examples and practice problems for thorough grasp of the subject presented. \* A large number of multiple choice questions with answers given.

Basic Electrical Engineering 2e provides a lucid exposition of the principles of electrical engineering for both electrical as well as non-electrical undergraduates of engineering. Students pursuing diploma courses as well as those appearing for AMIE examinations would also find this book extremely useful.

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 subjects 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.

This book deals with the fundamentals of electrical engineering concepts like design & application of circuitry, equipment for power generation & distribution and machine control. Features transformers discussed in detail. Thoroughly revised chapters on single and three-phase induction motors. New chapter on: 1. Three-Phase Alternator 2. Electromechanical Energy Conversion 3. Testing of DC Machines

Basic Electrical Engineering is a core course for the first-year students of all engineering disciplines across the country. This course enables them to apply the basic concepts of electrical engineering for multi-disciplinary tasks, and lays the foundation for higher level courses in electrical and electronics engineering degrees. An established hallmark, this revised edition of the book continues to dwell on all the key concepts and applications in the field and covers the subject in its entirety. Curated with great care, it provides an unmatched exposure to the fundamentals of electricity, network theory, electric machines and measuring instruments. Rich pool of problems and appendices enhance the utility of the book and make it a lasting resource for students as well as instructors.

This book presents comprehensive coverage of all the basic concepts in electrical engineering. It is designed for undergraduate students of almost all branches of engineering for an introductory course in essentials of electrical engineering. This book explains in detail the properties of different electric circuit elements, such as resistors, inductors and capacitors. The fundamental concepts of DC circuit laws, such as Kirchhoff's current and voltage laws, and various network theorems, such as Thevenin's theorem, Norton's theorem, superposition theorem, maximum power transfer theorem, reciprocity theorem and Millman's theorem are thoroughly discussed. The book also presents the analysis of AC circuits, and discusses transient analysis due to switch operations in AC and DC circuits as well as analysis of three-phase circuits. It describes series and parallel RLC circuits, magnetic circuits, and the working principle of different kinds of transformers. In addition, the book explains the principle of energy conversion, the operating characteristics of DC machines, three-phase induction machines and synchronous machines as well as single-phase motors. Finally, the book includes a discussion on technologies of electric power generation along with the different types of energy sources. Key Features : Includes numerous solved examples and illustrations for sound conceptual understanding. Provides well-graded chapter-end problems to develop the problem-solving capability of the students. Supplemented with three appendices addressing matrix algebra, trigonometric identities and Laplace transforms of commonly used functions to help students understand the mathematical concepts required for the study of electrical engineering.

This book is designed to help the first-year engineering students in building their concepts in the course of Basic Electrical Engineering. It introduces the subject in a simple and lucid manner for a better understanding. It adopts a student friendly approach with many solved examples and unsolved questions. This book will serve as a stepping stone for students in understanding the course efficiently. It provides complete coverage of MAKAUT 2018 syllabus.

A comprehensive guide to electrical engineering.

This book is written for use as a textbook for the engineering students of all disciplines at the first year level of the B.Tech. programme. The text material will also be useful for electrical engineering students at their second year and third year levels. It contains four parts, namely, electrical circuit theory, electromagnetism and electrical machines, electrical measuring instruments, and lastly the introduction to power systems. This book also contains a good number of solved and unsolved numerical problems. At the end of each chapter references are included for those interested in pursuing a

Detailed Study.

Basic Electrical Engineering Tata McGraw-Hill Education Basic Elec Engg, 2E Tata McGraw-Hill Education

For the first time in India, we have a comprehensive introductory book on Basic Electrical Engineering that caters to undergraduate students of all branches of engineering and to all those who are appearing in competitive examinations such as AMIE, GATE and graduate IETE. The book provides a lucid yet exhaustive exposition of the fundamental concepts, techniques and devices in basic electrical engineering through a series of carefully crafted solved examples, multiple choice (objective type) questions and review questions. The book covers, in general, three major areas: electric circuit theory, electric machines, and measurement and instrumentation systems.

Although, a number of books, written by various authors on the subject are available in the market. However, the author feels that this book will facilitate the students not only to prepare for the regular University examinations. The book is also quite suitable for the professionals since many live examples have been incorporated. The book has the following exclusive features: (i) The Learning objectives of each chapter have been incorporated in the beginning to develop curiosity among the students. (ii) Practice exercise have been added in all the chapters after suitable intervals to impart necessary practice. (iii) At the end of each chapter, its summary highlights are given. This will enable the students to revise the subject matter quickly. (iv) A number of short answer and test questions have been given at the end of each chapter. While answering these questions, the readers will have to think deep into the subject matter. This will improve their analytical approach. Consequently, the students/readers will be in position to respond in a better way while appearing before the selection board or to deal with practical problems. (v) A sufficient number of objective type questions (MCQ) have been given at the end of each chapter. These questions will help the students to perform better in the competitive examinations. (vi) The subject matter is treated in a simple and lucid manner so that an average student can understand the subject easily. Although, typical mathematical expressions are avoided but simple mathematical relations are used for better explanation and understanding.

Basic Electrical and Electronics Engineering is a renowned book that attempts to provide a thorough coverage on basics of electrical and electronics engineering in a single volume. This second edition of the book has been carefully revised to include important topics like domestic wiring, electrical installations, instrument transformers, battery, etc. Written in a lucid manner, it enables the learners to apply the basic concepts of electrical and electronics engineering for multi-disciplinary tasks and lays the foundation for higher level courses. Rich pool of problems and appendices enhance the utility of the book and make it a lasting resource for students and instructors of all branches of engineering.

Attuned to the needs of undergraduate students of engineering in their first year, Basic Electrical Engineering enables them to build a strong foundation in the subject. A large number of real-world examples illustrate the applications of complex theories. The book comprehensively covers all the areas taught in a one-semester course and serves as an ideal study material on the subject. This hallmark text on Basic Electrical Engineering provides concise and balanced account of all key concepts as well as applications in the field. With the liberal use of practical illustrations and numerous exercises, it offers an unparalleled exposure to Electricity Fundamentals, Network Theory, Electromagnetism, Electric Machines, Transformers, and Measuring Instruments. Covers entire spectrum of basic electrical engineering from the fundamentals to measuring instruments in a single volume. Special focus on step-by step and tutorial approach for solved examples 16 lab experiments included in the text. Rich pool of pedagogy. This book is designed based on revised syllabus of JNTU, Hyderabad (AICTE model curriculum) for under-graduate (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.

The aim of this book is to provide a consolidated text for the first year B.E. Computer Science and Engineering students and B.Tech Information Technology students of Anna University. The syllabus has been thoroughly revised for the non-semester yearly pattern by the University. The book, made up of five chapters, systematically covers the five units of the syllabus. It begins with a detailed discussion on the fundamentals of electric circuits. DC circuits, AC circuits, 3-phase circuits, resonance and the network theorems. Lecture-type presentation of the rudiments of the fundamentals in conjunction with hundreds of solved examples is the strength of this book. Magnetic circuits and various magnetic elements and their properties, with number of illustrations are presented. DC machines and transformers are further dealt with. Equivalent circuits of machines supported with the respective photographs will ease the reader to understand the concepts of machines much better. Synchronous machines and asynchronous machines and fundamentals of control systems with various practical examples and relevant worked illustrations conclude this book. A large number of numerical illustrations and diagrammatic representations make this book valuable for students and teachers.

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