

## Basic Electrical Engineering By J S Katre

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 syllabu.

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. Students will quickly understand the popularity of this helpful sourcebook--the first edition sold 46,000 copies! The chief emphasis is on solving realistic problems, hundreds of which are included with detailed solutions. This popular study guide concisely yet clearly covers all the areas taught in two-semester survey courses and serves as an ideal review for electrical engineers and others looking for high ratings on the Professional Engineer's Examination.

Electrical Engineering Essence of electricity, Conductors, Semiconductors and insulators (elementary treatment only); Electric field, electric current, Potential and potential difference, Electromotive force, Electric power, Ohm's law, Basic circuit components, Electromagnetism related laws, Magnetic field due to electric current flow, Force on a current carrying conductor placed in a magnetic field, Faradays laws of electromagnetic induction. Types of induced EMF's, Kirchhoff's laws, Simple problems. Network Analysis Basic definitions, Types of elements, types of sources, Resistive networks, Inductive networks, Capacitive networks, Series parallel circuits, Star delta and delta star transformation, Network theorems-Superposition, Thevenin's, Maximum power transfer theorems and simple problems. Magnetic Circuits Basic definitions, Analogy between electric and magnetic circuits, Magnetization characteristics of Ferro magnetic materials, Self inductance and mutual inductance, Energy in linear magnetic systems, Coils connected in series, Attracting force or electromagnets. Alternating Quantities Principle of ac voltages, Waveforms and basic definitions, Relationship between frequency, Speed and number of poles, Root mean square and average values of alternating currents and voltage, form factor and peak factor, Phasor representation of alternating quantities, The J operator and phasor algebra, analysis of ac circuits with single basic network element, single phase series circuits, Single phase parallel circuits, Single phase series parallel circuits, Power in ac circuits. Transformers Principles of operation, Constructional details, Ideal Transformer and Practical Transformer, Losses, Transformer Test, Efficiency and Regulation Calculations. Direct current machines Principle of operation of dc machines, Armature windings, E.M.F. equation in a dc machine, Torque production in a dc machine, Operation of a dc machine as a generator, Operation of a dc machine as a motor. A.C. Machines Three phase induction motor, principle of operation, Slip and rotor frequency, Torque (simple problems). Synchronous Machines Principle of operation, EMF equation (Simple problems on EMF). Synchronous motor principle and operation (Elementary treatment only) Basic Instrument Classification of instruments, Operating principles, Essential features of measuring instruments, Moving coil permanent magnet (PMMC) instruments, Moving Iron of Ammeters and Voltmeters (elementary treatment only).

The book is written for an undergraduate course on the Basic Electrical Engineering. It provides comprehensive explanation of theory and practice of electrical engineering. It elaborates various aspects of d.c. and a.c. circuit analysis, magnetic circuits, measuring instruments, single phase transformers and various electrical machines. The book starts with the concepts of electric charge, current and potential difference. It explains Kirchhoff's laws, star-delta transformation, mesh analysis and node analysis. It also covers the application of various network theorems in analyzing d.c. circuits. The book incorporates detailed discussion of steady state analysis of single-phase series and parallel a.c. circuits along with the resonance. The book also explains the three phase balanced circuits, three phase power measurement and power factor improvement. The simple techniques and stepwise methods used to explain the phasor diagrams is the feature of the book. The book teaches the theory of various electrical measuring instruments. The book also covers the concept of earthing and electrical safety, which is most important while dealing with the electrical equipment's. The book also includes the discussion of magnetic circuits, self and mutual inductances and magnetic hysteresis. The book further explains the details of single-phase transformers and various electrical machines such as d.c. machines, three phase and single-phase induction motors and synchronous machines. The brief introduction of power system is also incorporated in the book. 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. All the chapters are arranged in a proper sequence that permits each topic to build upon earlier studies. The variety of solved examples is the feature of this book which helps to inculcate the knowledge of the basic electrical engineering in the students. The book explains the philosophy of the subject which makes the understanding of the concepts very clear and makes the subject more interesting.

Pocket Book of Electrical Engineering Formulas provides key formulas used in practically all areas of electrical engineering and applied mathematics. This handy, pocket-sized guide has been organized by topic field to make finding information quick and easy. The book features an extensive index and is an excellent quick reference for electrical engineers, educators, and students.

This textbook provides comprehensive, in-depth coverage of the fundamental concepts of electrical engineering. It is written from an engineering perspective, with special emphasis on circuit functionality and applications. Reliance on higher-level mathematics and physics, or theoretical proofs has been intentionally limited in order to prioritize the practical aspects of electrical engineering. This text is therefore suitable for a number of introductory circuit courses for other majors such as mechanical, biomedical, aerospace, civil, architecture, petroleum, and industrial engineering. The authors' primary goal is to teach the aspiring engineering student all fundamental tools needed to understand, analyze and design a wide range of practical circuits and systems. Their secondary goal is to provide a comprehensive reference, for both major and non-major students as well as practicing engineers.

The primary objective of vol. I of A Text Book of Electrical Technology is to provide a comprehensive treatment of topics in Basic Electrical Engineering both for electrical as well as nonelectrical students pursuing their studies in civil, mechanical, mining, textile, chemical, industrial, environmental, aerospace, electronic and computer engineering both at the Degree and diploma level. Based on the suggestions received from our esteemed readers, both from India and abroad, the scope of the book has been enlarged according to their requirements. Almost half the solved examples have been deleted and replaced by latest examination papers set upto 1994 in different engineering collage and technical institutions in India and abroad.

This comprehensive book with a blend of theory and solved problems on Basic Electrical Engineering has been updated and upgraded in the Second Edition as per the current needs to cater 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 text 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.

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 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.

This book covers the basic areas of study in the basic, core electrical engineering course. Solved examples and problems enhance the reader's comprehension of the material. It serves as a self-study review for professional engineering exams.

With practically-oriented coverage of all the basic concepts in electrical engineering, this text is a general introduction to the field. It integrates conceptual discussions with current, relevant technological applications, presenting modularized coverage of a wide range of topics. In addition, it aims to offer strong pedagogical support and clear explanations.

A comprehensive guide to electrical engineering.

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.

Electrical Engineering 101 covers the basic theory and practice of electronics, starting by answering the question "What is electricity?" It goes on to explain the fundamental principles and components, relating them constantly to real-world examples. Sections on tools and troubleshooting give engineers deeper understanding and the know-how to create and maintain their own electronic design projects. Unlike other books that simply describe electronics and provide step-by-step build instructions, EE101 delves into how and why electricity and electronics work, giving the reader the tools to take their electronics education to the next level. It is written in a down-to-earth style and explains jargon, technical terms and schematics as they arise. The author builds a genuine understanding of the fundamentals and shows how they can be applied to a range of engineering problems. This third edition includes more real-world examples and a glossary of formulae. It contains new coverage of: Microcontrollers FPGAs Classes of components Memory (RAM, ROM, etc.) Surface mount High speed design Board layout Advanced digital electronics (e.g. processors) Transistor circuits and circuit design Op-amp and logic circuits Use of test equipment Gives readers a simple explanation of complex concepts, in terms they can understand and relate to everyday life. Updated content throughout and new material on the latest technological advances. Provides readers with an invaluable set of tools and references that they can use in their everyday work.

The book is written per the syllabus of first year engineering degree course for various universities. It covers basic topics of electrical engineering. It also includes worked out examples, University examination questions and answers, exercise, etc in every chapter. This book is suitable for course in basic electrical engineering under various Universities. Authors have tried to elucidate the topics in such a way that even a mediocre student can assimilate them. Many solved problems, sample question papers and exercise given in every section will provide a thorough understanding of the topics. Other features include attractive writing style, well structured equations and numerical examples, pictures of high clarity, etc.

This new edition of a proven textbook provides comprehensive, in-depth coverage of the fundamental concepts of electrical and computer engineering. It is written from an engineering perspective, with special emphasis on circuit functionality and applications. Reliance on higher-level mathematics and physics, or theoretical proofs has been

