

Basic Electrical And Electronic Engineering Premkumar

For close to 30 years, “Basic Electrical Engineering” has been the go-to text for students of Electrical Engineering. Emphasis on concepts and clear mathematical derivations, simple language coupled with systematic development of the subject aided by illustrations makes this text a fundamental read on the subject. Divided into 17 chapters, the book covers all the major topics such as DC Circuits, Units of Work, Power and Energy, Magnetic Circuits, fundamentals of AC Circuits and Electrical Instruments and Electrical Measurements in a straightforward manner for students to understand.

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.

The aim of this book is to introduce students to the basic electrical and electronic principles needed by technicians in fields such as electrical engineering, electronics and telecommunications. The emphasis is on the practical aspects of the subject, and the author has followed his usual successful formula, incorporating many worked examples and problems (answers supplied) into the learning process. Electrical Principles and Technology for Engineering is John Bird's core text for Further Education courses at BTEC levels N11 and N111 and Advanced GNVQ. It is also designed to provide a comprehensive introduction for students on a variety of City & Guilds courses, and any students or technicians requiring a sound grounding in Electrical Principles and Electrical Power Technology.

FUNDAMENTALS OF ELECTRICAL AND ELECTRONICS ENGINEERING

Experiments In Basic Electrical Engineering

Everything You Should Have Learned In School...but Probably Didn't

FEC 105 Basic Electrical and Electronics Engineering

BASIC ELECTRONICS FOR NON ELECTRICAL ENGINEERS (with MATLAB and Simulink Exercises)

*Designed For Entry-Level Engineering Students, This Book Presents A Thorough Exposition Of Electrical, Electronics, Computer And Communication Engineering. Simple Language Has Been Used Throughout The Book And The Fundamental Concepts Have Been Systematically Highlighted * This Edition Includes New Chapters On * Transmission And Distribution * Communication Services * Linear And Digital Integrated Circuits * Sequential Logic System * The Book Also Includes * Large Number Of Diagrams For A Clear Understanding Of The Subject * Cumerous Solved Examples Illustrating Basic Concepts And Techniques * Exercises And Review Questions With Answers * Revision Formulae For Quick Review And Recall*All These Features Make This Book An Ideal Text For Both Degree And Diploma Students Engineering.

*It Has Often Been Experienced That Students Are Required To Perform Experiments On Certain Topic 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 Of Demand From A Large Number Of States For An Appropriate Laboratory Manual In Basic Electricity And Electrical Measurements, The T.T.T.L., 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 Alongwith 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 technology. Analogue electronics. Electrical actuators.

Basic Electrical and Electronics Engineering-II (ASTU, Assam)

Electrical and Electronic Principles and Technology

Basic Concepts of Electrical Engineering

Basic Electrical Engineering: Circuits/electronics/machines/control

Electrical Engineering for Non-Electrical Engineers, Second Edition

An earnest attempt has been made in the book "Basic Concepts of Electrical and Electronics Engineering" to elucidate the principles and applications of Electrical and Electronics Engineering and its importance, as to evince interest on the topics so that the students gets motivated to study the subject with the interest.

UNIT I - ELECTRICAL CIRCUITS ANALYSIS Ohms Law, Kirchhoff's Law-Instantaneous power- series and parallel circuit analysiswith resistive, capacitive and inductive network - nodal analysis, mesh analysisnetworktheorems

- Thevenins theorem, Norton theorem, maximum power transfertheorem and superposition theorem, three phase supply-Instantaneous, Reactive andapparent power-star delta conversion.**UNIT II - ELECTRICAL MACHINES**

DC and AC rotating machines: Types, Construction, principle, EMF and torqueequation, application Speed Control- Basics of Stepper Motor - Brushless DC motors-Transformers Introduction- types and construction, working principle of Idealtransformer - EMF equation- All day efficiency calculation.**UNIT III - UTILIZATION OF ELECTRICAL POWER** Renewable energy sources-wind and solar panels. Illumination by lamps- SodiumVapour, Mercury vapour, Fluorescent tube. Domestic refrigerator and air conditioner-Electric circuit, construction and working principle. Batteries-NiCd, Pb Acid andLi ion-Charge and Discharge Characteristics. Protection-need for earthing, fusesand circuit breakers. Energy Tariff calculation for domestic loads.**UNIT IV - ELECTRONIC CIRCUITS** PN Junction-VI Characteristics of Diode, zener diode, Transistors configurations- amplifiers. Op amps- Amplifiers, oscillator, rectifiers, differentiator, integrator, ADC, DAC. Multi vibrator using 555 Timer IC . Voltage regulator IC using LM723, LM 317.**UNIT V - ELECTRICAL MEASUREMENT** Characteristic of measurement-errors in measurement, torque in indicating instruments-moving coil and moving iron meters, Energy meter and watt meter. Transducers-classification-thermo electric, RTD, Strain gauge, LVDT, LDR and piezoelectric.Oscilloscope-CR

CR
This is a handwritten basic electrical and electronics engineering notes. The syllabus is as follows: UNIT - IELECTRICAL CIRCUITS: Basic definitions, Types of network elements, Ohm's Law, Kirchhoff's Laws, inductive networks, capacitive networks, series, parallel circuits and star-delta and delta-star transformations. UNIT - IIDC MACHINES: Principle of operation of DC generator - emf equation - types - DC motor types -torque equation - applications - three point starter, Swinburne's Test, speed control methods.**UNIT - IIITRANSFORMERS:** Principle of operation of single phase transformers - e.m.f equation - losses -efficiency and regulation.**UNIT - IVAC MACHINES:** Principle of operation of alternators - regulation by synchronous impedance method -principle of operation of 3-Phase induction motor - slip-torque characteristics - efficiency - applications.**UNIT VRECTIFIERS & LINEAR ICs:** PN junction diodes, diode applications (Half wave and bridge rectifiers). Characteristics of operation amplifiers (OP- AMP) - application of OP-AMPs (inverting, non inverting, integrator and differentiator).**UNIT VITRANSISTORS:** PNP and NPN junction transistor, transistor as an amplifier, single stage CE Amplifier, frequency response of CE amplifier, concepts of feedback amplifier.

Conceptual Approach
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
Basic Electrical And Electronics Engineering (PTU, Jalandhar)
Basic Electronics
In International System SI of Units
 This practical resource introduces electrical and electronic principles and technology covering theory through detailed examples, enabling students to develop a sound understanding of the knowledge required by technicians in fields such as electrical engineering, electronics and telecommunications. No previous background in engineering is assumed, making this an ideal text for vocational courses at Levels 2 and 3, foundation degrees and introductory courses for undergraduates. 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.

Are you looking for a simple and understandable introduction to the basics of electrical engineering and electronics? Then you are well advised with this book! As an engineer (M.Eng.) I would like to teach you the basics of electrical engineering and electronics. In summary, this book offers you an easy to understand, intuitively structured and practical introduction to the world of electrical engineering! What is current and what is voltage? What is charge? What is power, what is 1 kWh? How does an electric motor work? What is the difference between direct current and alternating current? This electrical engineering handbook not only answers these questions, but also covers many other topics in depth and detail. In addition, in this compact beginner's guide, you will quickly and easily learn the functions as well as the application of important electronic components such as resistors, diodes, transistors, capacitors and much more. This book offers you a comprehensive yet compact introduction to the basics of electrical engineering and electronics! In addition to important basic terms and principles, you will also learn, for example, how to analyze circuits (Kirchhoff's rules), what a bipolar transistor is, what a MOSFET is, and how a RLC circuit is designed. We will also look at what happens when you place an inductor in a magnetic field and what practical applications these basic principles have in our modern world. We will also do some calculations together and we will learn the mathematical equations behind the basic principles of electrical engineering in each chapter. However, depending on how deep you want to go into the material, you can also just take note of them. This fundamentals book is aimed specifically at anyone who has no prior knowledge of electrical and electronic engineering, or who already has some knowledge but is looking for a practical and understandable guide to electrical engineering. No matter what age you are, what profession you have, whether you are a pupil, student or pensioner. This book is for anyone who wants or needs to learn about electrical engineering and electronics. The aim of this book is to introduce you to how electrical engineering accompanies us in everyday life and the basic principles involved. In addition, you will learn the basics of direct current technology and alternating current technology, their theoretical backgrounds and much more! Develop a basic understanding of electrical engineering and electronics in no time! Therefore, do not hesitate any longer, best take a look at the book and get your copy home as an ebook or paperback! Briefly summarized, you will learn the following in detail in this course: - Basic concepts and basic quantities of electrical engineering - How to analyze and solve electrical engineering circuits - Ohm's law, Ampere's law and Farady's law - Components such as resistor, diode (e.g. LED), transistor, capacitor, transformer, ..., and how they work and what they are used for - The difference between direct current and alternating current, as well as single-phase and multi-phase systems - How does electricity get into the house? Getting to know the power supply system - Direct current and alternating current motors and their structure / mode of operation - Outlook: Renewable energies such as photovoltaics and wind power - and much more! Take a look at the book and get your copy as an ebook or paperback!

Basic Electrical Engineering

Electrical Engineering | Step by Step

Electrical Engineering 101

Basics, Components & Circuits Explained for Beginners

Basic Electrical & Electronics Engineering

An earnest attempt has been made in the book 'Basic Concepts of Electrical Engineering' to elucidate the principles and applications of Electrical Engineering and also its importance, so as to evince interest on the topics so that the student gets motivated to study the subject with interest.
Packed with real-world examples, vivid illustrations, and the latest developments from the field, ELECTRICAL STUDIES FOR TRADES, 5th EDITION is ideal for current and future service technicians in air conditioning and refrigeration, construction, and facilities management--and anyone else who needs a practical knowledge of electricity. Extremely reader-friendly, the book begins with an overview of basic electricity concepts--rather than complex mathematical calculations. From here, you proceed directly to must-know information, including how to determine wire sizes and make a variety of common switch connections. Different types of electrical power panels are also examined in detail. Discussion of general wiring practices and circuit protectors, as well as an introduction to transformers and three-phase and single-phase motors, round out the comprehensive coverage. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

The book is written per the syllabus of first year engineering degree course for various universities. It covers basic topics of electrical, electronics and communication 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 and electronics 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 book is one among prescribed textbooks for the syllabus of BIT, Mesra, Ranchi.
Integrated Electrical and Electronic Engineering for Mechanical Engineers
For Related Engineering Disciplines
Basics Of Electrical Engineering
Basic Electrical Engineering and Electronic
Occupational Outlook Handbook

UNIT I - ELECTRICAL CIRCUITSBasic circuit components, Ohms Law - Kirchoff's Law - Instantaneous Power - Inductors - Capacitors - Independent and Dependent Sources - steady state solution of DC circuits - Nodal analysis, Mesh analysis- Thevinin's Theorem, Norton's Theorem, Maximum Power transfer theorem- Linearity and Superposition Theorem.**UNIT II - AC CIRCUITS**Introduction to AC circuits - waveforms and RMS value - power and power factor, single phase and three-phase balanced circuits - Three phase loads - housing wiring, industrial wiring, materials of wiring**UNIT III - ELECTRICAL MACHINES**Principles of operation and characteristics of; DC machines, Transformers (single and three phase), Synchronous machines, three phase and single phase induction motors.**UNIT IV - ELECTRONIC DEVICES & CIRCUIT**STypes of Materials - Silicon & Germanium- N type and P type materials -PN Junction -Forward and Reverse Bias -Semiconductor Diodes -Bipolar Junction Transistor - Characteristics - Field Effect Transistors - Transistor Biasing -Introduction to operational Amplifier -Inverting Amplifier -Non Inverting Amplifier -DAC - ADC.**UNIT V - MEASUREMENTS & INSTRUMENTATION**Introduction to transducers - Classification of Transducers:

Resistive, Inductive, Capacitive, Thermoelectric, piezoelectric, photoelectric, Hall effect and Mechanical-, Classification of instruments - Types of indicating Instruments - multimeters - Oscilloscopes- - three-phase power measurements - instrument

transformers(CT and PT)

Basic Electrical and Electronics Engineering:Pearson Education India

This book is designed to serve as a resource for exploring and understanding basic electrical engineering concepts, principles, analytical and mathematical strategies that will aid the reader in progressing their electrical engineering knowledge to intermediate or advanced levels. The study of electrical engineering concepts, principles and analysis techniques is made relatively easy for the reader by inclusion of most of the reference data, in form of excerpts from different parts of the book, within the discussion of each case study, exercise and self-assessment problem solution. This is done in an effort to facilitate quick study and comprehension of the material without repetitive search for reference data in other parts of the book. To this new edition the author has introduced a new chapter on batteries where the basic, yet important, facets of the battery and its sustainable and safe operation is covered. The reader will be shown the not-so-obvious charging and discharging performance characteristics of batteries that can be determining factors in the selection, application and optimal performance of batteries.

Fundamentals of Electrical Engineering and Electronics

Basic Electronics Engineering

Basic Electronics Engineering & Devices

Basic Electrical, Electronics and Instrumentation Engineering

Electrical Studies for Trades

Basic Electrical and Electronics Engineering provides an overview of the basics of electrical and electronic engineering that are required at the undergraduate level. The book allows students outside electrical and electronics engineering to easily

This book is primarily designed to serve as a textbook for undergraduate students of electrical, electronics, and computer engineering, but can also be used for primer courses across other disciplines of engineering and related sciences. The book covers all the basic aspects of electronics engineering, from electronic materials to devices, and then to basic electronic circuits. The book can be used for freshman (first year) and sophomore (second year) courses in undergraduate engineering. It can also be used as a supplement or primer for more advanced courses in electronic circuit design. The book uses a simple narrative style, thus simplifying both classroom use and self study. Numerical values of dimensions of the devices, as well as of data in figures and graphs have been provided to give a real world feel to the device parameters. It includes a large number of numerical problems and solved examples, to enable students to practice. A laboratory manual is included as a supplement with the textbook material for practicals related to the coursework. The contents of this book will be useful also for students and enthusiasts interested in learning about basic electronics without the benefit of formal coursework.

This second edition, extensively revised and updated, continues to offer sound, practically-oriented, modularized coverage of the full spectrum of fundamental topics in each of the several major areas of electrical and electronics engineering. Circuit Theory Electrical Measurements and Measuring Instruments Electric Machines Electric Power Systems Control Systems Signals and Systems Analog and Digital Electronicsincluding introduction to microcomputers The book conforms to the syllabi of Basic Electrical and Electronic Sciences prescribed for the first-year engineering students. It is also an ideal text for students pursuing diploma programmes in Electrical Engineering. Written in a straightforward style with a strong emphasis on primary principles, the main objective of the book is to bring an understanding of the subject within the reach of all engineering students. What is New to This Edition : Fundamentals of Control Systems (Chapter 24) Fundamentals of Signals and Systems (Chapter 25) Introduction to Microcomputers (Chapter 32) Substantial revisions to chapters on Transformer, Semiconductor Diodes and Transistors, and Field Effect Transistors Laplace Transform (Appendix B) Applications of Laplace Transform (Appendix C) PSpice (Appendix E) key Features : Numerous solved examples for sound conceptual understanding End-of-chapter review questions and numerical problems for rigorous practice by students Answers to all end-of-chapter numerical problems An objective type Questions Bank with answers to hone the technical skills of students for viva voce and preparation for competitive examinations.

Basic Electrical and Electronics Engineering

Basic Electrical and Electronics Engineering:

Fundamental Theories of Electric Circuit

Basic Concepts of Electrical and Electronics Engineering

Lessons in Electric Circuits: An Encyclopedic Text & Reference Guide (6 Volumes Set)

Fundamentals of DC and AC CircuitsFundamentals of DC Circuits : Ohm's law, Kirchoff's law, Simple resistive circuits - Effect of series and parallel resistances - Mesh and Nodal analysis - Simple problems.Fundamentals of AC Circuits : RMS and average values of sine wave, Form factor, Peak factor,Single phase AC circuits - Impedance, Power and power factor - RL, RC, RLC circuits - Simple AC

circuits - Problems.Fundamentals of Magnetic CircuitsOhm's law of magnetic circuit, Simple and composite magnetic circuits, Effect of air gap - Leakage factor - fringing effect - Simple problems. Faraday's law of electromagnetic induction - Self and Mutually induced EMF - Statically and Dynamically induced EMF - Simple problems.DC Machines and TransformersDC Machine : Construction - EMF equation of DC generator - Types of generators and motors - Characteristics.Transformer : Construction - EMF equation - Transformation ratio - Types of transformers - Instrumentation transformer.Induction MachinesThree Phase Induction Motor : Construction, Types - Principle of operation - Torque equation - Slip Vs Torque characteristics of cage and wound rotor.Single Phase Induction Motor : Principle of operation-Types - Applications.Power SuppliesHalf wave and full wave rectifiers - Bridge rectifier - Types of filters - Voltage regular - Introduction to SMPS and UPS. The book is written per the syllabus of first year engineering degree course for various universities. It covers basic topics of electrical and electronics 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 book is one of the prescribed text books for the syllabus of Kerala University B. Sc Electronics course. This third edition of Basic Electrical Engineering provides a lucid exposition of the principles of electrical engineering. The book provides an exhaustive coverage of topics such as network theory and analysis, magnetic circuits and energy conversion, ac and dc machines, basic analogue instruments, and power systems. The book also gives an introduction to illumination concepts. Electrical Principles and Technology for Engineering Including Laboratory Manual Basics of Electrical Electronics and Communication Engineering Engineering Basics: Electrical, Electronics and Computer Engineering Fundamentals of Electrical Engineering I

This book gives a concise presentation of the fundamentals of Electronics with applications mainly to Biosciences. It is thought that Mechanical Engineers, Computer Scientists, Physicists, Chemical Engineers and Bio-Scientists, students and graduates, will benefit from studying the book, as they will be helped to understand better the operation of the electronic equipment they use in their daily life at home and/or at work. It will also be useful to those who participate in multidisciplinary working teams, which require use of electronic equipment in their research and development projects. Additionally, it will be useful to teachers of electronics and corresponding students in Non-Electronic Engineering Departments at Technical Colleges and Universities. No previous knowledge of electronics is assumed and the reader will be helped to comprehend the material by following the numerical examples and solving the problems using MATLAB and Simulink programs. Books in this series have been specially designed to meet the requirements of a large spectrum of engineering students of ASTU-those who find learning concepts difficult and want to study through solved examples, and those who wish to study the traditional way. A large number of solved examples are the backbone of this series and are aimed at instilling confidence in the students to take on the examinations. Basic Electrical and Electronics Engineering - II has been specially designed to serve as a textbook for an introductory course on basic electrical and electronics engineering. It meets the requirements of a large spectrum of 2ndsemester undergraduate students of all branches of engineering. The book has been developed with an eye on the interpretation of concepts and application of theories. The language has been kept very simple so that students are able to assimilate the subject matter with ease. A large number of solved examples have also been provided for self-assessment. Key Features • Complete coverage of all the modules of the syllabi of ASTU and also useful for GATE and other graduate level exams • Comprehensive and lucid presentation of the basic concepts • Over 120 worked-out examples including conceptual guidelines • Over 430 multiple choice questions with answers • A large number of short questions and answers 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. Basic Electrical, Electronics and Measurement Engineering Schaum's Outline of Basic Electrical Engineering