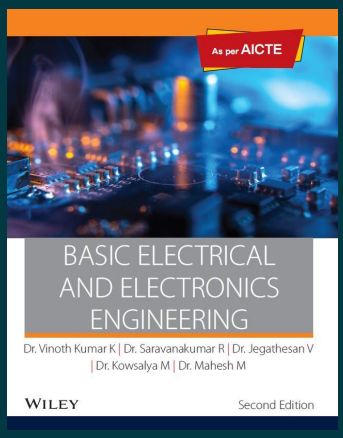
WILEY



Basic Electrical and Electronics Engineering, 2ed

By Dr. Vinoth Kumar K, Dr. Saravanakumar R, Dr. Jegathesan V, Dr. Kowsalya M, Dr. Mahesh M

Paperback 9789354643194 **₹999.00**

Description

This book, Basic Electrical and Electronics Engineering, is meant for a wide range of readers who wish to learn the basic concepts. This book addresses the basic requirements of the course in B.E., B.Tech, B.Sc. Electrical and Electronics Engineering, Electronics and Communication Engineering, Electronics and Instrumentation Engineering, Mechanical Engineering, Information Science Engineering, Computer Science Engineering, Biomedical Engineering, Robotics Engineering, Aerospace Engineering, Marine Engineering, etc.The entire book is written in a style to enable the students to understand the subject matter without much difficulty.

About the Author

Dr. Vinoth Kumar K, Dr. Saravanakumar R, Dr. Jegathesan V, Dr. Kowsalya M, Dr. Mahesh M

Dr. Vinoth Kumar K is working as an Associate Professor in the Department

of Electrical and Electronics Engineering at New Horizon College of

Engineering, Bengaluru. He is having 12.8 years of teaching as well as research experience and his research area includes Condition monitoring of electrical machines, Signal and Model-Based Techniques, Soft computing techniques in Power electronics applications, Neuro-Fuzzy Computing, Computational based classification for breast cancer, Photonic Crystal Fiber

Table of Contents

Preface

About the Authors

Chapter 1 Basics of Electrical Engineering

1.1 Electrical Quantities

1.2 Definitions About Various Quantities

1.3 SI Units

Chapter 2 DC Circuits

2.1 Introduction

2.2 Circuit Laws

2.3 Series and Parallel Circuits

2.4 Nodal and Mesh Analysis

2.5 Delta to Wye Transformation

2.6 Wye to Delta Transformation

Chapter 3 Network Theorems
3.1 Superposition Theorem
3.2 Thevenin’s Theorem
3.3 Norton’s Theorem
3.4 Maximum Power Transfer Theorem
3.5 Millman’s Theorem
3.6 Reciprocity Theorem
3.7 Substitution Theorem
3.8 Compensation Theorem
3.9 Tellegen’s Theorem
Chapter 4 DC Transients
4.1 Basics of Response
4.2 Time-Domain Analysis of R–L Circuit
4.3 Time-Domain Analysis of R–C Circuit
4.4 Time-Domain Analysis of R–L–C Circuit
Chapter 5 Magnetic Circuits
5.1 Definitions of Magnetic Quantities
5.2 Analysis of Magnetic Circuit
5.3 Magnetic Leakage
5.4 Retentivity
5.5 Magnetic Hysteresis
5.6 Magnetization Cycle
5.7 Hysteresis Loss
5.8 Steinmetz Law
5.9 Eddy Current Loss
Chapter 6 Principles of Electrical Machines
6.1 Functions of Electrical Machines
6.2 Permanent Magnet
6.3 Electromagnet
6.4 Laws of Electromagnetic Induction
6.5 Electrochemical Energy Conversion
Chapter 7 AC Circuits
7.1 Introduction
7.2 Generation of Alternating E.M.F.
7.3 Equation of Alternating Voltage
7.4 Alternating Quantity (Current or Voltage)
7.5 Cycle
7.6 Time Period (T)

7.7 Frequency (F)
7.8 Angular Frequency
7.9 Maximum or Peak Value or Amplitude
7.10 Average Value
7.11 Root Mean Square Value
7.12 Form Factor
7.13 Peak Factor
7.14 Expression for RMS Value, Average Value of Sinusoidal Alternating Quantity
7.15 Expression for RMS, Average Value of Half-Wave Rectified AC
7.16 Phase Representation of Alternating Quantity
7.17 Resonance
7.18 Series Resonance
7.19 Parallel Resonance
Chapter 8 Polyphase Systems
8.1 Two-Phase System
8.2 Three-Phase System
8.3 Three-Phase System of Connections
8.4 Phase Sequence
8.5 Balanced or Unbalanced Three-Phase System
8.6 Symmetrical or Unsymmetrical Systems
8.7 Voltages and Currents
8.8 Systems of Connections
8.9 Star- or Wye-Connected System
8.10 Delta Connected Systems
8.11 Comparison Between Star and Delta
8.12 Line Voltage Vector Diagrams with Load Current–Star/Delta
8.13 Balanced Star Load with Impedance
8.14 Balanced Delta Load with Impedance
8.15 Power Measurement in Single-Phase System
8.16 Power Measurement in Three-Phase System
8.17 Two-Wattmeter Method of Power Measurement
8.18 Two-Wattmeter Method Measurement
8.19 Unbalanced Loads in Star
8.20 Symmetrical Components
Chapter 9 Electrical Machines
9.1 Introduction
9.2 DC Machines
9.3 Transformer

9.4 Three-Phase Induction Motor
9.5 Single-Phase Induction Motor
9.6 Synchronous Motor
9.7 Autotransformer
9.8 Universal Motor
9.9 Linear Induction Motor
9.10 Stepper Motor
9.11 Servomotor
9.12 BLDC Motor
Chapter 10 Basics of Measuring Instruments
10.1 Introduction
10.2 Classification
10.3 Principle of Analog Instrument
10.4 Moving Coil Instruments
10.5 Moving Iron Instrument
10.6 Use of Voltmeters and Ammeters
10.7 Dynamometer Type Wattmeter
10.8 Induction Type Energy Meter
10.9 Megger
10.10 Measurement Errors
Chapter 11 Basics of Domestic Wiring and Batteries
11.1 Introduction
11.2 Factors Affecting Choice of Wiring System
11.3 Wiring Materials and Accessories
11.4 Types of Wiring
11.5 Rules for Wiring
11.6 Specification of Wires
11.7 Two-way and Three-way Control of Lamps
11.8 Fluorescent Tube Wiring
11.9 Simple Domestic Layout
11.10 Earthing
Chapter 12 Basics of Power Systems
12.1 Introduction
12.2 Types of Power Stations
12.3 Transmission
12.4 Distribution
Chapter 13 Basics of Electrical Components
13.1 Resistors

13.2 Fixed Resistors
13.3 Variable Resistors
13.4 Color Coding
13.5 Capacitors
13.6 Dissipation Factor
13.7 Inductors
13.8 Chokes
Chapter 14 Basics of Semiconductor Devices and Power Electronics
14.1 Classification of Materials
14.2 Properties of Semiconductors
14.3 Classification of Semiconductors
14.4 P-N Junction
14.5 P-N Junction Diode
14.6 Rectifiers
14.7 Zener Diode
14.8 Filters
14.9 Bipolar Transistor
14.10 Field Effect Transistor
14.11 Basic Concepts of Power Electronics Converters
14.12 DC–DC Converters
14.13 Voltage Source Inverter
14.14 Pulse Width Modulation
Chapter 15 Basics of Special Semiconductor Devices
15.1 Silicon Controlled Rectifiers (SCRs)
15.2 Triode for Alternating Current (TRIAC)
15.3 Unijunction Transistor (UJT)
15.4 Opto-Electronic Devices
Chapter 16 Transducers
16.1 Basic Requirements of Transducers
16.2 Classification of Transducers
16.3 Displacement Transducers
16.4 Temperature Transducers
16.5 Piezoelectric Transducers
16.6 Hall Effect Transducer
16.7 Sensor and Actuator
Chapter 17 Basics of Linear and Digital Integrated Circuits
17.1 Integrated Circuits
17.2 Linear Integrated Circuits

17.3 IC Timer
17.4 Digital Integrated Circuits
17.5 Decimal and Binary Numbers
17.6 Octal and Hexadecimal Numbers
Chapter 18 Basics of Computers
18.1 Input Devices
18.2 Central Processing Unit (CPU)
18.3 Output Devices
18.4 Memory Devices
18.5 Memory Terminology
18.6 Mass Storage Data System
18.7 Computer Input Units
18.9 Plotters
18.10 Computer Output on Microfilm
18.11 Digital to Analog Converter
18.12 Classification of Computers
18.13 Microprocessors
Chapter 19 Basics of Communication
19.1 Analog and Digital Signal
19.2 Data Transmission
19.3 Modulation
19.4 Demodulation
19.5 Pulse Modulation
19.6 Digital Data Transmission
19.7 Data Communication System
19.8 MODEMS
19.9 Communication System
19.10 Computer Network
19.11 Integrated Services Digital Network (ISDN)
19.12 Internet
Summary
Multiple Choice Questions
Review Questions
Answers
Index

To purchase this product, please visit:
https://www.wileyindia.com/basic-electrical-and-electronics-engineering-2ed.html

Scan to buy