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Electronic Communications

PRINCIPLES OF ELECTRONIC COMMUNICATION SYSTEMS
Third Edition
by Louis Frenzel
2008 (January 2007)
Browse http://www.mhhe.com/frenzel3e

Principles of Electronic Communication Systems 3/e provides the most up-to-date survey available for students taking a first course in electronic communications. Requiring only basic algebra and trigonometry, the new edition is notable for its readability, learning features and numerous full-color photos and illustrations. A systems approach is used to cover state-of-the-art communications technologies, to best reflect current industry practice. This edition contains greatly expanded and updated material on the Internet, cell phones, and wireless technologies.

Practical skills like testing and troubleshooting are integrated throughout. A brand-new Laboratory & Activities Manual provides both hands-on experiments and a variety of other activities, reflecting the variety of skills now needed by technicians. A new Online Learning Center web site is available, with a wealth of learning resources for students. An Instructor Productivity Center CD-ROM features solutions to all problems, PowerPoint lessons, and ExamView test banks for each chapter.

NEW TO THIS EDITION

- New streamlined book design used to highlight learning features, four-color art figures and photographs.
- Updated coverage of cell phones and wireless technologies in chapters 20 and 21.
- Systems approach to electronic communications is used, reflecting current trends in the workplace.
- Internet technologies are covered in new chapter 15, which includes a section on Internet Security.
- OLC website includes includes the following student resources: self-tests, lab follow-up, links to sites of interest, chapter study overviews, and career information. Instructors will find online versions of the instructor's manual, PowerPoint and lab follow-up.
- An all-new Laboratory & Activities Manual is available, with hands-on labs, simulation routines, and a wide range of activities.
- Television chapter, fully updated, is available on the OLC website, for those who cover the topic.
- Tests & Measurements are covered in chapter 22, with coverage of new technologies like JTAG.
- “Good to Know” margin features direct students to key points in the text.

FEATURES

- Modern coverage of all major communications topics, concentrating on the key areas students need to master.
- Instructor Productivity Center (IPC) offers complete PowerPoint lessons and electronic test banks for each chapter, plus the Instructor's Manual, with complete solutions to text questions and problems, in electronic form. CPS from eInstruction is also available for classroom management and testing.

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Electricity & Electronics

**International Edition**

**COMMUNICATION ELECTRONICS**

*Third Edition*

By Louis E. Frenzel

2001


**CONTENTS**


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**Electronic Principles**

**NEW**

**ELECTRONICS**

Principles and Applications, Seventh Edition

by Charles Schuler

2008 (February 2007) / 608 pages


[w]ith Multi SIM CD]

Electronics: Principles and Applications provides a concise, practical introduction to analog devices, circuits and systems. Like earlier editions, the Seventh Edition combines theory with real-world applications in a well-paced sequence, introducing students to such topics as semiconductors, op amps, linear integrated circuits, switching power supplies, electronic communications devices and DSP. The text prepares students to effectively diagnose, repair, verify, and install electronic circuits and systems, without overwhelming them with excessive theory. MultiSim examples are included for optional simulation activities, with MultiSim circuit files included on a bound-in CD ROM. Prerequisites are a command of algebra and an understanding of fundamental electrical concepts.

**NEW TO THIS EDITION**

- Bound-in CD ROM with MultiSim version 7 circuit simulation files, for circuits included in both the textbook and Experiments Manual.
- New OLC website is available, with new student and instructor resources.

**FEATURES**

- Concise approach to electronics, with a practical approach throughout. Just enough theory is presented to support the practical applications students will need for their careers.
- Student learning is reinforced by Self-Tests included with each chapter sub-section; and by Summaries, Related Formulas, Review Questions & Problems and Critical Thinking Questions at the end of each chapter.
- Popular features such as chapter objectives, highlighted key terms, color-coded circuit components, and About Electronics have been retained and updated.
- Modern topics like DSP (chapter 16) and Wireless Networks for communications (section 12-5) are included.
- Experiments Manual for Electronics: Principles and Applications contains labs linked to the text, to help students gain hands-on experience to reinforce subject matter and develop troubleshooting skills.
- Instructor Productivity Center CD ROM contains classroom PowerPoint presentations for every chapter, Test Generator, supplemental PowerPoint presentations, electronic Solutions Manual, and more.

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1 Introduction 1-1 A Brief History 1-2 Digital or Analog 1-3 Analog Functions 1-5 Trends in Electronics 2 Semiconductors 2-1 Conductors & Insulators 2-2 Semiconductors 2-3 N-Type Semiconductors 2-4 P-Type Semiconductors 3 Diodes 3-1 The PN Junction 3-2 Characteristic Curves of Diodes 3-3 Diode Load Identification 3-4 Diode Types and Applications 4 Power Supplies 4-1 The Power-Supply System 4-2 Rectification 4-3 Full-Wave Rectification 4-4 Conversion of RMS Values to Average Values 4-5 Filters 4-6 Voltage Multipliers 4-7 Ripple and Regulation 4-8 Zener Regulators 4-9 More Karnaugh Maps 5 Transistors 5-1 Amplification 5-2 Transistors 5-3 Characteristic Curves 5-4 Transistor Data 5-5 Transistor Testing 5-6 Other Transistor Types 5-7 Transistors as Switches 6 Introduction to Small-Signal Amplifiers 6-1 Measuring Gain 6-2 Common-Emitter Amplifier 6-3 Stabilizing the Amplifier 6-4 Other Configurations 6-5 Simulation and Models 7 More About Small-Signal Amplifiers 7-1 Amplifier Coupling 7-2 Voltage Gains in Coupled Stages 7-3 Field-Effect Transistor (FET) Amplifiers 7-4 Negative Feedback 7-5 Frequency Response 7-6 Triggering Flip-Flops 7-7 Schmitt Triggered Devices 7-8 IE Logic Symbols 8 Large-Signal Amplifiers 8-1 Amplifier Class B-2 Class A Power Amplifiers 8-3 Class B Power Amplifiers 8-4 Class AB Power Amplifiers 8-5 Class C Power Amplifiers 8-6 Switch-Mode Amplifiers 9 Operational Amplifiers 9-1 The Differential Amplifier 9-2 Differential Amplifier Analysis 9-3 Operational Amplifiers 9-4 Setting Op-Amp Gain 9-5 Frequency Effects in Op Amps 9-6 Op-Amp Applications 9-7 Comparators 10 Troubleshooting 10-1 Preliminary Checks 10-2 No Output 10-3 Reduced Output 10-4 Distortion and Noise 10-5 Intermittents 10-6 Operational Amplifiers 11 Oscillators 11-1 Oscillator Characteristics 11-2 RC Circuits 11-3 LC Circuits 11-4 Crystal Circuits 11-5 Relaxation Oscillators 11-6 Undesired Oscillations 11-7 Oscillator Troubleshooting 11-8 Direct Digital Synthesis 12 Communications 12-1 Modulation and Demodulation 12-2 Simple Receivers 12-3 Superheterodyne Receivers 12-4 Frequency Modulation and Single Sideband 12-5 Wireless Networks 12-6 Troubleshooting 13 Integrated Circuits 13-1 Introduction 13-2 Fabrication 13-3 The 555 Timer 13-4 Analog ICs 13-5 Mixed IC Signals 13-6 Troubleshooting 14 Electronic Control Devices and Circuits 14-1 Introduction 14-2 The Silicon-Controlled Rectifier 14-3 Full-Wave Devices 14-4 Feedback in Control Circuits 14-5 Troubleshooting Electronic Control Circuits 15 Regulated Power Supplies 15-1 Open-Loop Voltage Regulation 15-2 Closed-Loop Voltage Regulation 15-3 Current and Voltage Limiting 15-4 Switch-Mode Regulators 15-5 Troubleshooting Regulated Power Supplies 16 Digital Signal Processing 16-1 Overview of DSP Systems 16-2 Moving-Average Filters 16-3 Fourier Theory 16-4 Digital Filter Theory 16-5 Other DSP Applications 16-6 Limits of DSP 16-7 DSP Troubleshooting / Appendix A Soldering / Appendix B Thermionic Devices / Glossary / Index
This seventh edition of Malvino’s classic Electronic Principles offers students a definitive overview of electronic circuits and devices. Expert knowledge of electronic devices is presented in a stimulating, clearly written, conversational style. The new, streamlined book design is full-color throughout, with clear illustrations. Greater emphasis on modern integrated circuit (IC) technology, and the revision of nearly one third of the previous edition’s chapter problems and review questions reflects this text while retaining its proven approach. In addition to the text there is a wealth of supplementary material included for both student and instructor. An upgraded Experiments Manual, the optional use of MultiSIM software, an instructor’s manual with an Instructor Productivity Center CD-ROM, the updated Workbook, and the brand new Online Learning Center website make this text a powerful learning tool. Electronic Principles is written for electronics students who have done course work in basic electricity and electronics concepts and applications. It is written in a conversational style at a technician level. The new, "Good to Know" feature offers practical information related to topics explained on that page of the text. Frequent Self-Test questions and worked examples provide students with immediate feedback and step-by-step procedures for learning key concepts and applications.

**NEW TO THIS EDITION**

- Greater emphasis on modern integrated circuits (IC) technology.
- Extensive Online Learning Center website with resources for students and instructors.
- Added by co-author David Bates, Worked-Out examples now contain embedded Practice Problems.
- The new “Good to Know” feature offers practical information related to topics explained on that page of the text.
- Expanded MultiSIM usage. The optional use of this software provides “pre-lab” simulations students can work on virtually.
- The upgraded Experiments Manual now includes more on the testing of individual components along with circuits and systems in many labs, with optional MultiSIM applications included. The updated Workbook reflects integration of revised chapter problems and review questions.
- The enhanced Instructor’s Manual with Productivity Center (IPC) CD-ROM includes instructional PowerPoint presentations, availability of the instructor Classroom Performance System in-class quizzing and classroom management system, test banks created with EZTest that can be used in conjunction with CPS to deliver in-class quizzes, tests, or review.

**FEATURES**

- Malvino’s Electronic Principles combines proven expertise in all aspects of electronics with a student-friendly, contemporary appearance. It is written in a conversational style at a technician level.
- Optical topics in modern electronics are covered, including fiber optics and high intensity LEDs.
- Free, bound-in CD-ROM contains MultiSim exercises and selected circuits for simulation.

**CONTENTS**

1 Introduction. 2 Semiconductors. 3 Diode Theory. 4 Diode Circuits. 5 Special-Purpose Diodes. 6 Bipolar Junction Transistors. 7 Transistor Fundamentals. 8 Transistor Biasing. 9 AC Models. 10 Voltage Amplifiers. 11 CC and CB Amplifiers. 12 Power Amplifiers. 13 JFETs. 14 MOSFETs. 15 Thyristors. 16 Frequency Effects. 17 Differential Amplifiers. 18 Operational Amplifiers. 19 Negative Feedback. 20 Linear Op-Amp Circuits. 21 Active Filters. 22 Nonlinear Op-Amp Circuits. 23 Oscillators. 24 Regulated Power Supplies.
Introduction To Electricity/ Electronics, DC/AC Circuits

GROB'S BASIC ELECTRONICS WITH SIMULATION CD
Tenth Edition
By Mitchell E. Schultz, Western Wisconsin Tech College
2007 (May 2006)
IE with OLC & Student CD]
Browse http://www.mhhe.com/grob10e

Grob's Basic Electronics, Tenth Edition, is written for the beginning student pursuing a technical degree in Electronics Technology. In covering the fundamentals of electricity and electronics, this text focuses on essential topics for the technician, and the all-important development of testing and troubleshooting skills. This highly practical approach combines clear, carefully-laid-out explanations of key topics with worked-out examples, and problems to solve. Review problems that follow each section reinforce the material just completed, making this a very student-friendly text. It is a thoroughly accessible introduction to basic DC and AC circuits and electronic devices. This tenth edition of this longtime best-selling text has been refined, updated and made more student friendly. The focus on absolutely essential knowledge for technicians, and focus on real-world applications of these basic concepts makes it ideal for today's technology students.

NEW TO THIS EDITION
• A new beginning chapter, “The Powers of Ten,” initiates the course with scientific notation, a math skill that every electronics student must be able to use.
• New Streamlined Design: The new edition of Grob has a contemporary, streamlined design that underscores the text’s tight focus on essential topics. Marginal text features—Calculator Tips, Pioneers in Electronics, and Good to Know—have been selected and designed to reinforce basic skills and key concepts.
• Superior Examples and Problems: Examples, carefully laid out in a step-by-step fashion, now include Practice Problems, which provide the students with immediate feedback. On a similar note, review problems have been reorganized to follow each sub-chapter section, allowing an immediate link to the text material just covered. In addition, selected examples can be used with Multisim files (provided on the bound-in Multisim CD-ROM) to show students the use of modern computer simulation techniques in circuit analysis and troubleshooting.
• Well-Integrated Ancillary Materials for Students: Ancillary materials flesh out all aspects of this well-considered text. The Experiments Manual also includes a Multisim CD-ROM so students can combine both hands-on and simulated lab work, and a Problems Manual provides students with an alternative set of skill-building problems and exercises. The Online Learning Center website provides a complete overview of the basic math needed in DC/AC electronics, along with other useful instructor and student resources.
• Instructor Ancillary Content: For the instructor, there is a printed Instructor Solutions Manual with a bound-in Instructors Productivity Center (IPC) CD-ROM; the IPC contains the Classroom Performance System (CPS) for in-class quizzing and classroom management, instructional PowerPoint slides, and electronic testbanks for all book chapters.

FEATURES
• Extensive coverage of Troubleshooting

CONTENTS

GROB'S BASIC ELECTRONICS Fundamentals of DC and AC Circuits with Simulations CD
By Mitchell E. Schultz, Western Wisconsin Tech College
2007 (March 2006)
IE with OLC & Student CD]

Grob's Basic Electronics: Fundamentals of DC/AC Circuits is written for the beginning student pursuing a degree in electronics technology. In covering the fundamentals of electricity and electronics, this text focuses on essential topics for the technician and the all-important development of troubleshooting skills. This highly practical approach combines clear, carefully-laid-out explanations of key topics with worked-out examples and problems to solve. Review problems that follow each section reinforce material just completed making this a very student-friendly text. It provides the student with complete, comprehensive coverage of all of the fundamental concepts of DC and AC circuit theory. This first edition combines the tried and true Grob’s Basic Electronics with more specific study in DC/AC Circuitry. For the first time, instructors can choose between Grob’s Basic Electronics 10th edition, with its additional coverage of devices or this new, concise Fundamentals of DC/AC Circuits. The focus on absolutely essential knowledge for technicians, including troubleshooting failed circuitry, keeps this book completely practical.

FEATURES
• Superior Examples and Problems: Examples, solved in a step-by-step fashion, include embedded Practice Problems, which provide the students with immediate feedback. On a similar note, review problems follow each section, allowing an immediate link to material just covered.
• Integrated MultiSim simulations are included, marked with an icon, and files for these are included on the free, bound-in CD-ROM.
• Chapter on Powers of 10: An opening chapter on basic scientific and engineering notation entitled “Introduction to Powers of 10” clearly explains these necessary math skills.
• Superior Ancillary Materials for Students: Ancillary materials flesh out all aspects of this thorough text. The Experiments Manual includes a MultiSim CD so students can combine both hands-on and simulated lab work, and a Problems Manual provides students with an alternative set of problems and exercises. The Online Learning Center provides a complete overview of the basic math needed in DC/AC electronics, and student study features.
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Preface Introduction to Powers of 10. 1 Electricity. 2 Resistors. 3 Ohm’s Law. 4 Series Circuits. 5 Parallel Circuits. 6 Series-Parallel Circuits. 7 Voltage Dividers and Current Dividers. 8 Direct-Current Meters. 9 Kirchhoff’s Laws. 10 Network Theorems. 11 Conductors and Insulators. 12 Batteries. 13 Magnetism. 14 Electromagnetism. 15 Alternating Voltage and Current. 16 Capacitance. 17 Capacitive Reactance. 18 Reactive Circuits. 19 Inductance. 20 Inductive Reactance. 21 Inductive Circuits. 22 RC and LR Time Constants. 23 Alternating Current Circuits. 24 Complex Numbers for AC Circuits. 25 Resonance. 26 Filters

I Basic Electricity: A Textbook Manual

Seventh Edition

By Paul B. Zbar, Gordon Rockmaker and David J. Bates, Western Wisconsin Tech College

2001


CONTENTS


Programmable Logic Controllers

LOGIXPRO SIMULATION LAB/EXERCISE MANUAL

Third Edition

By Frank D. Petruzella

2005 / 480 pages


Now in four-color, this outstanding text for the first course in programmable logic controllers (PLCs) focuses on how PLCs work and gives students practical information about installing, programming, and maintaining PLC systems. It’s not intended to replace manufacturers or user’s manuals, but rather complements and expands on the information contained in these materials. All topics are covered in small segments. Students systematically carry out a wide range of generic programming exercises and assignments. All of the information about PLCs has been updated.

CONTENTS

1 Programmable Logic Controls (PLCs): An Overview. 2 PLC Hardware Components. 3 Number Systems and Codes. 4 Fundamentals of Logic. 5 Basics of PLC Programming. 6 Developing Fundamental PLC Wiring Diagrams and Ladder Programs. 7 Programming Timers. 8 Programming Counters. 9 Program Control Instructions. 10 Data Manipulation Instructions. 11 Math Instructions. 12 Sequence and Shift Register Instructions. 13 PLC Installation Practices, Editing, and Troubleshooting

PROGRAMMABLE LOGIC CONTROLLERS

Third Edition

By Frank D. Petruzella

2005 / 480 pages


www.mhhe.com/plc

Now in four-color, this outstanding text for the first course in programmable logic controllers (PLCs) focuses on how PLCs work and gives students practical information about installing, programming, and maintaining PLC systems. It’s not intended to replace manufacturers or user’s manuals, but rather complements and expands on the information contained in these materials. All topics are covered in small segments. Students systematically carry out a wide range of generic programming exercises and assignments. All of the information about PLCs has been updated.

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Electricity & Electronics

INDUSTRIAL ROBOTICS
By Harry Colestock
2007 / 220 pages
Professional Book

With the proliferation of many types of robots in recent years, there is a real need to assist engineers, automation manufacturers, and robot aficionados in the proper selection, care, and feeding of a robot to achieve the maximum in productivity. This book does just that, along with classifying robots in accordance to their complexity and function provided. The book is perfect for large corporations as well as smaller “Mom and Pop” shops who may be considering using robots to help their industrial applications.

CONTENTS

ROBOTICS DEMYSTIFIED
By Edwin Wise
2005 / 350 pages
Professional Book

McGraw-Hill’s Demystified titles are the most efficient, interestingly written, brush-ups you can find. Organized as self-teaching guides, they come complete with key points, background information, questions at the end of each chapter, and even final exams. You’ll be able to learn more in less time, evaluate your strengths and weaknesses, and reinforce your knowledge and confidence. This complete self-teaching guide takes an introductory approach to robotics, guiding readers through the essential electronics, mechanics, and programming skills necessary to build their own robot.

CONTENTS
MILLER’S GUIDE TO HOME WIRING
By Rex Miller, Mark R. Miller and Glenn E. Baker
2005 / 260 pages
Professional Book
Written by authors of McGraw-Hill’s popular Carpentry & Construction, Fourth Edition, this new, dollar-saving series is great for do-it-yourselfers, weekend repairmen and home owners, as well as seasoned pros who want to stay on top of the latest methods, materials, equipment and code requirements. Organized according to the actual stages of construction, these titles detail everything needed to successfully plan, manage, and complete a job. All are heavily illustrated and contain valuable tip-boxes throughout.

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