1. Record Nr. UNINA9910821634103321

Autore	Robertson Christopher R
Titolo	Further electrical and electronic principles / / Christopher R. Robertson
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Elsevier / Newnes, 2008
ISBN	1-136-40151-2 1-282-71113-X 9786612711138 0-08-087812-1
Edizione	[3rd ed.]
Descrizione fisica	1 online resource (280 p.)
Disciplina	621.3
Soggetti	Electrical engineering Electronics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Cover; Further Electrical and Electronic Principles; Copyright; Contents; Preface; Chapter 1 Single-Phase Series A.C. Circuits; 1.1 Pure Resistance; 1.2 Pure Inductance; 1.3 Inductive Reactance; 1.4 Pure Capacitance; 1.5 Capacitive Reactance; 1.6 Impedance; 1.7 Inductance and Resistance in Series; 1.8 Resistance and Capacitance in Series; 1.9 Resistance, Inductance and Capacitance in Series; 1.10 Power in the A. C. Circuit; 1.11 Power Factor; 1.12 Power Triangle; 1.13 Series Resonance; Summary of Equations; Assignment Questions; Suggested Practical Assignments Chapter 2 Single-Phase Parallel A.C. Circuits2.1 Summary of Series A.C. Circuits and Equations; 2.2 The R-C Parallel Circuit; 2.3 The R-L Parallel Circuit; 2.4 R-L-C Parallel Circuit; 2.5 Practical Components in Parallel; 2.6 Series Resonance; 2.7 Circuit Q-factor; 2.8 Frequency Response Curve; 2.9 Parallel Resonance; 2.10 The Importance of Power Factor; 2.11 Power Factor Correction; 2.12 Filters; 2.13 Low-pass Filters; 2.14 High-pass Filters; 2.15 Band-pass Filters; 2.16 Band-stop (Notch) Filters; 2.17 Coupled Tuned Circuits; Summary of Equations; Assignment Questions Suggested Practical AssignmentsChapter 3 Three-Phase A.C. Circuits; 3.1 Generation of a Three-Phase Supply; 3.2 Three-Phase, Four-Wire

System; 3.3 Relationship between Line and Phase Quantities in a Star-connected System; 3.4 Delta or Mesh Connection; 3.5 Relationship between Line and Phase Quantities in a Delta-connected System; 3.6 Power Dissipation in Star and Delta-connected Loads; 3.7 Star/Delta Supplies and Loads; 3.8 Measurement of Three-phase Power; 3.9 The Two-Wattmeter Method; 3.10 Neutral Current in an Unbalanced Three-phase Load; 3.11 Advantages of Three-phase Systems
Summary of EquationsAssignment Questions; Suggested Practical Assignments; Chapter 4 Network Theorems; 4.1 Superposition Theorem; 4.2 Constant Voltage and Constant Current Sources and their Equivalence; 4.3 Thevenin's Theorem; 4.4 Norton's Theorem; 4.5 The Maximum Power Transfer Theorem; Assignment Questions; Chapter 5 A.C. Machines; 5.1 Transformer emf Equation; 5.2 The Practical Transformer; 5.3 Measurement of Transformer Losses; 5.4 Transformer Efficiency; 5.5 Isolating Transformer; 5.6 The Auto Transformer; 5.7 Current Transformer; 5.8 Alternators; 5.9 Rotor Construction
5.10 Alternator emf Equation5.11 Alternator Losses; 5.12 The Production of a Rotating Magnetic Field from a Polyphase Supply; 5.13 Three-phase Induction Motor; 5.14 Three-phase Synchronous Motor; 5.15 Starting Methods for Three-phase Motors; 5.16 Single-phase Motors; Summary of Equations; Assignment Questions; Suggested Practical Assignments; Chapter 6 D.C. Machines; 6.1 The Generation of D.C. Voltage; 6.2 The Commutation Process; 6.3 Armature Reaction; 6.4 Construction of D.C. Machines; 6.5 Types of Armature Winding; 6.6 Generator emf Equation; 6.7 Classification of Generators
6.8 Separately Excited Generator

Sommario/riassunto

Further Electrical and Electronic Principles is a core text for pre-degree courses in electrical and electronic engineering courses. The coverage of this new edition has been brought in line with the specialist unit 'Further Electrical Principles' of the 2007 BTEC National Engineering specification from Edexcel. As the book follows a logical topic progression rather than a particular syllabus, it is also suitable for other Level 3 students on vocational courses such as Vocational AS/A Level, City & Guilds courses and NVQs.More advanced material has also been included, making this text