1. Record Nr. UNINA9910816464803321 Autore Ferreira Braham Titolo The principles of electromechanical power conversion / / Braham Ferreira, Wim Van der Merwe Pubbl/distr/stampa Hoboken, New Jersey: .: IEEE, . 2014 ©2014 **ISBN** 1-118-82333-8 1-118-82346-X 1-118-79885-6 Descrizione fisica 1 online resource (413 p.) Disciplina 621.31/7 Soggetti Power electronics Electric generators Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Includes index. Note generali Nota di contenuto Cover; Title Page; Copyright; Preface; Chapter 1: Introduction to Electrical Systems and Power Conversion; 1.1 Electricity as an Energy Carrier; 1.2 Development of Electrical Energy Conversion Systems; 1.3 System Building Blocks; 1.4 Guide to the Book; Problems; Chapter 2: Electrical Power Sources and Energy Storage; 2.1 Introduction; 2.2 Primary Sources; 2.3 Secondary Sources; 2.4 Highlights; Problems; Chapter 3: Power, Reactive Power and Power Factor; 3.1 Introduction; 3.2 Power in DC Circuits; 3.3 Power in Resistive AC Circuits; 3.4 Effective or rms Values: 3.5 Phasor Representation 3.6 Power in AC Circuits 3.7 Apparent Power, Real Power and Power Factor: 3.8 Complex Power: 3.9 Electrical Energy Cost and Power Factor Correction; 3.10 Fourier Series; 3.11 Harmonics in Power Systems; 3.12 Power and Non-Sinusoidal Waveforms; 3.13 Effective or rms Value of Non-Sinusoidal Waveforms; 3.14 Power Factor of Non-Sinusoidal Waveforms: 3.15 Harmonics in Power Systems: 3.16 Three-Phase Systems: 3.17 Harmonics in Balanced Three-Phase Systems: 3.18 Highlights; Problems; Further Reading; Chapter 4: Magnetically Coupled

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Sommario/riassunto

Teaching the principles of power electronics and electro mechanical power conversion through a unique top down systems approach, The Principles of Electro mechanical Power Conversion takes the role and system context of power conversion functions as the starting point. Following this approach, the text defines the building blocks of the system and describes the theory of how they exchange power with each other. The authors introduce a modern, simple approach to machines, which makes the principles of field oriented control and space vector theory approachable to undergraduate students as