1. Record Nr. UNINA9910793487003321

Autore	Alencar Marcelo S. <1957->
Titolo	Modulation theory / / Marcelo Sampaio de Alencar
Pubbl/distr/stampa	Denmark : , : River Publishers, , [2018] 2018
ISBN	1-00-333886-0 1-003-33886-0 1-000-79453-9 87-93609-35-3 87-7022-078-6
Edizione	[1st ed.]
Descrizione fisica	1 online resource (268 pages)
Collana	River Publishers Series in Communications
Disciplina	621.381
Soggetti	Modulators (Electronics) Modulation theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Front Cover; Half Title Page; RIVER PUBLISHERS SERIES IN COMMUNICATIONS; Title PageModulation Theory; Copyright Page; Contents; Preface; List of Figures; Chapter 1Theory of Signals and Linear Systems; 1.1 Introduction; 1.2 Signal Analysis; 1.2.1 Linearity; 1.2.2 The Convolution Theorem; 1.3 Some Important Functions; 1.3.1 The Constant Function; 1.3.2 The Sine and the Cosine Functions; 1.3.3 The Heaviside Step Function; 1.3.4 The Ramp Function; 1.3.5 The Gate Function; 1.3.6 Impulse Function or Dirac's Delta Function; 1.3.7 The Sampling Function; 1.3.8 Even and Odd Functions 1.3.9 Some Elementary Properties of Functions1.4 Basic Fourier Analysis; 1.4.1 The Trigonometric Fourier Series; 1.4.2 The Compact Fourier Series; 1.4.3 The Exponential Fourier Series; 1.5 Fourier Transform; 1.5.1 Bilateral Exponential Signal; 1.5.2 Transform of the Gate Function; 1.5.3 Fourier Transform of the Impulse Function; 1.5.4 Transform of the Constant Function; 1.5.5 Fourier Transform of the Sine and Cosine Functions; 1.5.6 Fourier Transform of the Complex Exponential; 1.5.7 Fourier Transform of a Periodic Function; 1.6 Some Properties of the Fourier Transform 1.6.1 Linearity of the Fourier Transform1.6.2 Scaling

Property; 1.6.3 Symmetry of the Fourier Transform; 1.6.4 Time Domain Shift; 1.6.5 Frequency Domain Shift; 1.6.6 Differentiation in the Time Domain; 1.6.7 Integration in the Time Domain; 1.6.8 The Convolution Theorem in the Time Domain; 1.6.9 The Convolution Theorem in the Frequency Domain; 1.7 The Sampling Theorem; 1.8 Parseval's Theorem; 1.9 Average, Power, and Autocorrelation; 1.9.1 Time Autocorrelation of Signals; Chapter 2Random Signals and Noise; 2.1 The Theory of Sets, Functions, and Measure; 2.1.1 Set Theory 2.1.2 Operations on Sets2. 1.3 Families of Sets; 2.1.4 Indexing Sets; 2.1.5 Algebra of Sets; 2.1.6 Borel Algebra; 2.2 Probability Theory; 2.2.1 Axiomatic Approach to Probability; 2.2.2 Bayes' Rule; 2.3 Random Variables; 2.3.1 Mean Value of a Random Variable; 2.3.2 Moments of a Random Variable; 2.3.3 The Variance of a Random Variable; 2.3.4 The Characteristic Function of a Random Variable; 2.3.5 Some Important Random Variables; 2.3.6 Joint Random Variables; 2.4 Stochastic Processes; 2.4.1 The Autocorrelation Function; 2.4.2 Stationarity; 2.4.3 Wide Sense Stationarity; 2.4.4 Ergodic Signals 2.4.5 Properties of the Autocorrelation2.4.6 The Power Spectral Density; 2.4.7 Properties of the Power Spectral Density; 2.5 Linear Systems; 2.5.1 Expected Value of the Output Signal; 2.5.2 The Response of Linear Systems to Random Signals; 2.5.3 Phase Information; 2.6 Analysis of a Digital Signal; 2.6.1 Autocorrelation of a Digital Signal; 2.6.2 Power Spectral Density for the Digital Signal; 2.6.3 The Digital Signal Bandwidth; 2.7 Non-Linear Systems; 2.7.1 The Two-Level Quantizer; 2.7.2 Quantization Noise Spectrum for a Two-level Quantizer; 2.7.3 Response of a Squarer Circuit.

Sommario/riassunto

Green Engineering publishes original, high quality, peer-reviewed research papers and review articles dealing with environmentally safe engineering including their systems. The goal is to promote environmentally safe engineering by utilizing various modeling approaches, but especially transdisciplinary approach.