1. Record Nr. UNINA9910818942003321 Autore Ellis George (George H.) Titolo Control system design guide: using your computer to understand and diagnose feedback controllers / / George Ellis Amsterdam;; Boston,: Elsevier/BH, 2012 Pubbl/distr/stampa **ISBN** 1-283-73501-6 0-12-385921-2 Edizione [4th ed.] Descrizione fisica 1 online resource (521 p.) Disciplina 629.8 629.8/3 629.83 Soggetti Feedback control systems - Design and construction System design Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Includes bibliographical references and index. Nota di bibliografia Front Cover; Control System Design Guide: Using Your Computer to Nota di contenuto Understand and Diagnose Feedback Controllers; Copyright; Dedication; Contents; Praise for the new edition; Preface; What's New in this Edition?; Organization of the Book; Reader Feedback: Acknowledgments; Section I - Applied Principles of Controls; Chapter 1 - Introduction to Controls; 1.1Visual ModelQ Simulation Environment; 1.2The Control System; 1.3The Controls Engineer; Chapter 2 - The Frequency Domain; 2.1The Laplace Transform; 2.2Transfer Functions; 2.3Examples of Transfer Functions; 2.4Block Diagrams; 2.5Phase and 2.6Measuring Performance2.7 Questions; Chapter 3 - Tuning a Control System; 3.1 Closing Loops; 3.2 A Detailed Review of the Model; 3.3 The Open-Loop Method; 3.4 Margins of Stability; 3.5 A Zone-Based Tuning Procedure; 3.6 Variation in Plant Gain; 3.7 Multiple (Cascaded) Loops; 3.8 Power Converter Saturation and Synchronization; 3.9 Phase vs. Gain

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Sommario/riassunto

Control Systems Design Guide has helped thousands of engineers to improve machine performance. This fourth edition of the practical guide has been updated with cutting-edge control design scenarios, models and simulations enabling apps from battlebots to solar collectors. This useful reference enhances coverage of practical applications via the inclusion of new control system models, troubleshooting tips, and expanded coverage of complex systems requirements, such as increased speed, precision and remote capabilities, bridging the gap between the complex, math-heavy control theory ta