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Problem-Based Learning in Communication Systems Using MATLAB and Simulink For Ece

Computational Paradigm Techniques for Enhancing Electric Power Quality

Modeling and Simulation of Systems Using MATLAB and Simulink

Modeling and Control of AC Machine using MATLAB®/SIMULINK

Introduction to MATLAB & SIMULINK (A Project Approach)

Technological Developments in Networking, Education and Automation includes a set of rigorously reviewed world-class manuscripts addressing and detailing state-of-the-art research projects in the following areas: Computer Networks: Access Technologies, Medium Access Control, Network architectures and Equipment, Optical Networks and Switching, Telecommunication Technology, and Ultra Wideband Communications. Engineering Education and Online Learning: including development of courses and systems for engineering, technical and liberal studies programs; online laboratories; intelligent testing using fuzzy logic; taxonomy of e-courses; and evaluation of online courses. Pedagogy: including benchmarking; group-learning; active learning; teaching of multiple subjects together; ontology; and knowledge management. Instruction Technology: including internet textbooks; virtual reality labs, instructional design, virtual models, pedagogy-oriented markup languages; graphic design possibilities; open source classroom management software; automatic email response systems; tablet-pcs; personalization using web mining technology; intelligent digital chalkboards; virtual room concepts for cooperative scientific work; and network technologies, management, and architecture. Coding and Modulation: Modeling and Simulation, OFDM technology, Space-time Coding, Spread Spectrum and CDMA Systems. Wireless technologies: Bluetooth , Cellular Wireless Networks, Cordless Systems and Wireless Local Loop, HIPERLAN, IEEE 802.11, Mobile Network Layer, Mobile Transport Layer, and Spread Spectrum. Network Security and applications: Authentication Applications, Block Ciphers Design Principles, Block Ciphers Modes of Operation, Electronic Mail Security, Encryption & Message Confidentiality, Firewalls, IP Security, Key Cryptography & Message Authentication, and Web Security. Robotics, Control Systems and Automation: Distributed Control Systems, Automation, Expert Systems, Robotics, Factory Automation, Intelligent Control Systems, Man Machine Interaction, Manufacturing Information System, Motion Control, and Process Automation. Vision Systems: for human action sensing, face recognition, and image processing algorithms for smoothing of high speed motion. Electronics and Power Systems: Actuators, Electro-Mechanical Systems, High Frequency Converters, Industrial Electronics, Motors and Drives, Power Converters, Power Devices and Components, and Power Electronics.

Design and analyze electronic components and systems with the help of powerful software and effective skillsets. Balancing theory with practical exploration of the relevant software, you'll start solving power electronics problems like a pro. Using MATLAB®/Simulink®, you'll analyze the circuit in a laptop charger; interface with the power electronics converter controlling a washing machine's motor; turn on lamps with an electronic ballast; convert AC into DC power; and more! Power electronics are at the bedrock of all the wonderful devices simplifying our daily life. Designing them isn't just about understanding schematics. It also requires measuring twice and cutting once. In order to save time and money, a power electronics circuit must be simulated before construction. So you'll learn how to work with one of the most powerful simulation tools for this purpose. That way you'll know before you even go to make it whether the circuit works as expected. Learn to work with MATLAB®/Simulink® by directly applying and building the projects in this book. Or use it as a lab manual for power electronics and industrial electronics. Either way, using strong simulations and solid design theory, you'll be able to build power electronics that don't fail. What You'll Learn Simulate power electronics effectively before building them Select suitable semiconductor components for your circuit based on simulation waveforms Extract dynamic models of converters and design suitable controllers for them Who This Book Is For Engineers and students who want to simulate power electronics circuits in MATLAB®/Simulink®.

Combining academic and practical approaches to this important topic, Numerical and Analytical Methods with MATLAB® for Electrical Engineers is the ideal resource for electrical and computer engineering students. Based on a previous edition that was geared toward mechanical engineering students, this book expands many of the concepts presented in that book and replaces the original projects with new ones intended specifically for electrical engineering students. This book includes: An introduction to the MATLAB programming environment Mathematical techniques for matrix algebra, root finding, integration, and differential equations More advanced topics, including transform methods, signal processing, curve fitting, and optimization An introduction to the MATLAB graphical design environment, Simulink Exploring the numerical methods that electrical engineers use for design analysis and testing, this book comprises standalone chapters outlining a course that also introduces students to computational methods and programming skills, using MATLAB as the programming environment. Helping engineering students to develop a feel for structural programming—not just button-pushing with a software program—the illustrative examples and extensive assignments in this resource enable them to develop the necessary skills and then apply them to practical electrical engineering problems and cases.

This book and its accompanying CD-ROM offer a complete treatment from background theory and models to implementation and verification techniques for simulations and linear analysis of frequently studied machine systems. Every chapter of Dynamic Simulation of Electric Machinery includes exercises and projects that can be explored using the accompanying software. A full chapter is devoted to the use of MATLAB and SIMULINK, and an appendix provides a convenient overview of key numerical methods used. Dynamic Simulation of Electric Machinery provides professional engineers and students with a complete toolkit for modeling and analyzing power systems on their desktop computers.

What Every Engineer Should Know about MATLAB® and Simulink®

Simulation of Power Electronics Circuits with MATLAB®/Simulink®

Soft Computing Techniques

An Introduction to Theory, Modeling with MATLAB-SIMULINK, and the Role of Soft Computing Techniques

Power Electronics with MATLAB

Modeling and Simulation Using Matlab - Simulink

The goal of the book is to provide basic and advanced knowledge of design, analysis, and circuit implementation for electronic instrumentation and clarify how to get the best out of the analog, digital, and computer circuitry design steps. The reader will learn the physical fundamentals guiding the electrical and mechanical devices that allow for a modern automation and control system, which are widely comprised of computers, electronic instrumentation, communication loops, smart grids, and digital circuitry. It includes respect to efficiency, maximum power, and applications. Additionally, the text discusses fuzzy logic and neural networks and how they can be used in practice for electronic instrumentation of distributed generation, smart grids, and power systems.

MATLAB is a high-performance technical computing language. It has an incredibly rich variety of functions and vast programming capabilities. SIMULINK is a software package for modeling, simulating, and analysing dynamic systems. MATLAB and SIMULINK are integrated and one can simulate, analyse, or revise the models in either environment. The book MATLAB and SIMULINK for Engineers aims to capture the beauty of these software and serve as a self study material for engineering students who would be required