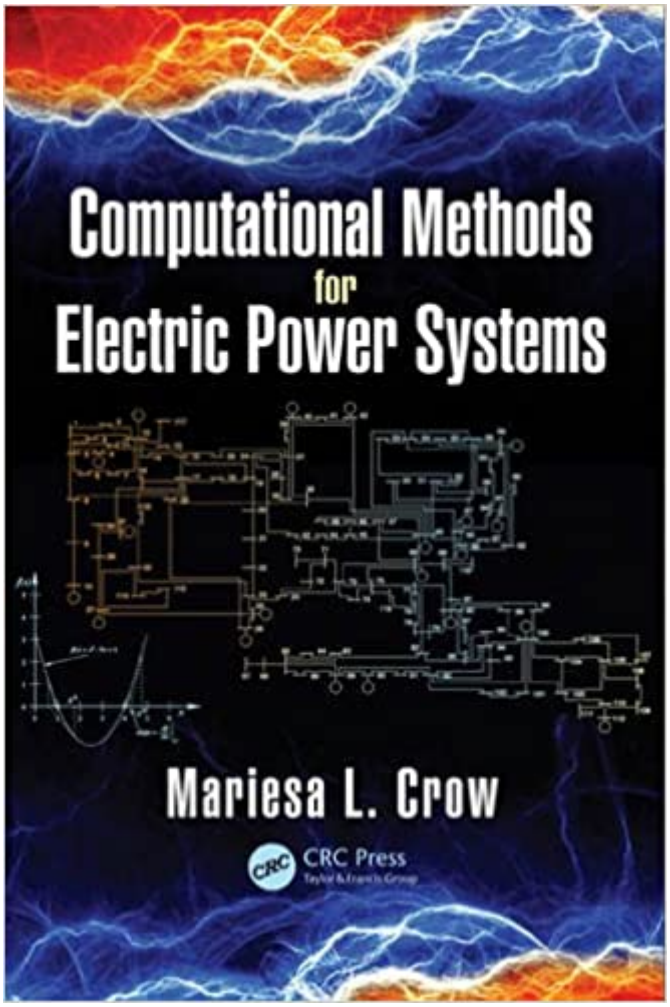
Computational Methods For Electric Power Systems, Third Edition (Electric Power Engineering Series)



Synopsis

Computational Methods for Electric Power Systems introduces computational methods that form the basis of many analytical studies in power systems. The book provides the background for a number of widely used algorithms that underlie several commercial software packages, linking concepts to power system applications. By understanding the theory behind many of the algorithms, the reader can make better use of the software and make more informed decisions (e.g., choice of integration method and step size in simulation packages). This Third Edition contains new material on preconditioners for linear iterative methods, Broydenâ ™s method, and Jacobian-free Newtonâ “Krylov methods. It includes additional problems and examples, as well as updated examples on sparse lower-upper (LU) factorization. It also adds coverage of the eigensystem realization algorithm and the double-shift method for computing complex eigenvalues.

Book Information

Series: Electric Power Engineering Series

Hardcover: 345 pages

Publisher: CRC Press; 3 edition (November 18, 2015)

Language: English

ISBN-10: 1498711596

ISBN-13: 978-1498711593

Product Dimensions: 0.8 x 6.5 x 9.5 inches

Shipping Weight: 1.6 pounds (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #799,750 in Books (See Top 100 in Books) #173 inÂ Books > Engineering & Transportation > Engineering > Energy Production & Extraction > Electric #1691 inÂ Books > Engineering & Transportation > Engineering > Electrical & Electronics > Electronics #4367 inÂ Books > Science & Math > Nature & Ecology > Conservation

Customer Reviews

"This book analyzes the most relevant mathematical tools for power system analysis. It is well written, well balanced, and treats the mathematical issues with a good degree of rigor and clarity. The numerical examples are illustrative and useful. ... Iâ ™m considering to adopt this book for my course, since it condenses in a unique reference the mathematical backbone of the most important power system analysis tools."â •Alfredo Vaccaro, University of Sannio, Benevento, Italy "This book fits well into my short circuit analysis course (ECE610). ... The textbook flows, and it is a good

reference book even if it is not used as a textbook. ... This book is a must for any power systems faculty. ... This textbook can be a great complement to other textbooks that do not cover the material in depth. The sequential examples presented make this book quite friendly to the students."â •Bruno Osorno, California State University, Northridge, USA "â | presents a nonconventional approach to teach or understand power system analysis: mathematics first, then each topic is related to power system applications. â | This approach is ideal for researchers and graduate students, and can immediately lead them into the power system field. â | Algorithms, however sophisticated, are explained with clarity, along with numerical examples to help the reader get the point."â •Lingling Fan, University of South Florida, Tampa, USA "â | an excellent combination of topics regarding computational aspects and numerical algorithms for power system analysis, operations, and control. â | very useful for me to teach ECE530 [on analysis techniques for large-scale energy systems]."â •Hao Zhu, University of Illinois, Urbana-Champaign, USA "â | an excellent textbook â | for a graduate-level course in electric power engineering. â | covers a broad range of topics related to computational methods for power systems. â | contains very good problems for studentsâ ™ homework. I highly recommend this book for graduate teaching in electric power." â •Fangxing Li, University of Tennessee, Knoxville, USA "This book is complete in respect to the tools used for power system engineering. ... It is compact and nicely written. ... Many commercial packages are available in the market. They are just used in input-output form. Students never get the feeling of the methods used inside. It is required to understand the methods. [Thus,]Â this book is very useful."â •Professor SN Singh, Department of Electrical Engineering, Indian Institute of Technology Kanpur

Mariesa L. Crow is a professor of electrical engineering at the Missouri University of Science and Technology, Rolla, USA. Dr. Crow is director of the Energy Research and Development Center. Her areas of research include computer-aided analysis of power systems; dynamics and security analysis; voltage stability; computational algorithms for analyzing stressed, non-linear, non-continuous systems; power-electronic applications in bulk power systems (FACTS); and parameter estimation.

From Quantum to Coarse-Grained Methods (Series in Computational Biophysics) Computational Fluid Mechanics and Heat Transfer, Third Edition (Series in Computational and Physical Processes in Mechanics and Thermal Sciences) Theoretical Neuroscience: Computational and Mathematical Modeling of Neural Systems (Computational Neuroscience Series) The Engineering Design of Systems: Models and Methods (Wiley Series in Systems Engineering and Management) Electromechanical Systems, Electric Machines, and Applied Mechatronics (Electric Power Engineering Series) State Estimation in Electric Power Systems: A Generalized Approach (Power Electronics and Power Systems) Solar Power: The Ultimate Guide to Solar Power Energy and Lower Bills: (Off Grid Solar Power Systems, Home Solar Power System) (Living Off Grid, Wind And Solar Power Systems) Electric Power Substations Engineering, Third Edition (Electrical Engineering Handbook) The Power of Computational Thinking:Games, Magic and Puzzles to Help You Become a Computational Thinker Third Eye: Third Eye Activation Mastery, Easy And Simple Guide To Activating Your Third Eye Within 24 Hours (Third Eye Awakening, Pineal Gland Activation, Opening the Third Eye) Systems Engineering and Analysis (5th Edition) (Prentice Hall International Series in Industrial & Systems Engineering) Computational Transport Phenomena of Fluid-Particle Systems (Mechanical Engineering Series) Current Topics in Computational Molecular Biology (Computational Molecular Biology) Tissue Engineering I: Scaffold Systems for Tissue Engineering (Advances in Biochemical Engineering/Biotechnology) (v. 1) Heat Conduction Using Greenâ ™s Functions, 2nd Edition (Series in Computational Methods and Physical Processes in Mechanics and Thermal Sciences) Electric Smoker Cookbook Smoke Meat Like a PRO: TOP Electric Smoker Recipes and Techniques for Easy and Delicious BBQ (Electric Smoker Cookbook, ... Smoker Recipes, Masterbuilt Smoker Cookbook) Electric Power System Basics for the Nonelectrical Professional (IEEE Press Series on Power Engineering)