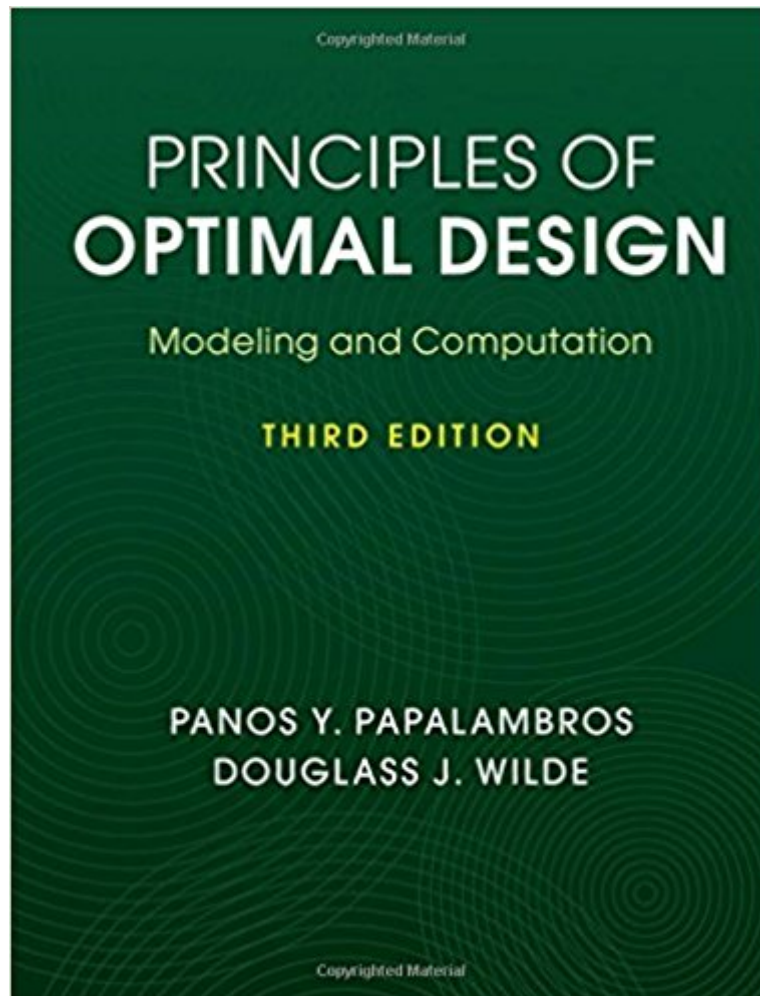




Ebook Directory
the best source of ebook

The book was found

Principles Of Optimal Design: Modeling And Computation



Synopsis

Design optimization is a standard concept in engineering design, and in other disciplines which utilize mathematical decision-making methods. This textbook focuses on the close relationship between a design problem's mathematical model and the solution-driven methods which optimize it. Along with extensive material on modeling problems, this book also features useful techniques for checking whether a model is suitable for computational treatment. Throughout, key concepts are discussed in the context of why and when a particular algorithm may be successful, and a large number of examples demonstrate the theory or method right after it is presented. This book also contains step-by-step instructions for executing a design optimization project - from building the problem statement to interpreting the computer results. All chapters contain exercises from which instructors can easily build quizzes, and a chapter on 'principles and practice' offers the reader tips and guidance based on the authors' vast research and instruction experience.

Book Information

Hardcover: 450 pages

Publisher: Cambridge University Press; 3 edition (January 9, 2017)

Language: English

ISBN-10: 1107132673

ISBN-13: 978-1107132672

Product Dimensions: 7 x 1.2 x 10 inches

Shipping Weight: 2.9 pounds (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #346,134 in Books (See Top 100 in Books) #145 in [Books > Science & Math > Experiments, Instruments & Measurement > Experiments & Projects](#) #518 in [Books > Engineering & Transportation > Engineering > Aerospace](#) #1192 in [Books > Textbooks > Science & Mathematics > Mathematics > Statistics](#)

Customer Reviews

'Principles of Optimal Design, third edition, offers an excellent combination of depth and breadth of fundamentals of mathematical modeling of systems design. Students and practitioners will find the textbook a great starting point to learn about the systems design methods and optimization theories from the fundamentals to the advanced numerical methods. The recent addition of the decomposition-based optimization method and analytical target cascading is a nice expansion to the traditional optimization methods. I use this textbook to teach graduate and advanced

undergraduate students who have basic understanding of numerical analysis. Students appreciate the spectrum of contents and they become ready to apply what they learn from the textbook to complex systems design cases. I highly recommend the textbook.' Harrison Hyung, University of Illinois, Urbana-Champaign 'Principles of Optimal Design has always been a well-structured textbook that introduces students to the fundamentals of optimal design while remaining accessible and enjoyable to read. The latest edition adds many brief but exciting glimpses of more advanced topics in optimization. These additions have transformed the book from a 'foundation' on which students can firmly stand to a 'catapult' that can propel them to exciting, new, and advanced topics in the broad discipline of optimal design.' Hosam Fathy, Penn State College of Engineering 'This third edition brings to the reader an impressive array of new and useful topics in optimal design. For example, and among others, new chapters on non-gradient based methods and decomposition-based optimization (or multi-disciplinary optimization, MDO) have been added. The book can be used both as a textbook for a graduate level course in all engineering fields, but also as a must have reference material. I highly recommend it!' Shapour Azarm, University of Maryland 'The Principles of Optimal Design, third edition, is an excellent first text for undergraduates and graduate students alike interested in gaining a firm grasp of practical design optimization methods. It blends the latest modeling techniques with a rigorous treatment of the mathematical analysis, allowing one to adeptly navigate the varied landscapes of modern design problems. From machine learning, automotive systems, financial portfolios, to even the modeling of human purchasing behavior, I have used this text to teach my students how to systematically apply the design process to a broad range of engineering problems.' George J. Delagrammatikas, The Cooper Union for the Advancement of Science and Art, New York 'This book, almost thirty years after its first edition, remains the only comprehensive text on engineering design optimization. In our 'one-click' software era, it provides theory fundamentals that tend to be neglected, while complementing them with rigorous modeling and computation techniques. I cannot think of a better textbook for engineering optimization courses, including a plethora of excellent examples and exercises. The third edition is enhanced with new and extremely useful material on recent developments in derivative-free optimization and optimal system design.' Michael Kokkolaras, McGill University, Canada 'I've found Principles of Optimal Design to be an excellent, comprehensive explanation of design optimization methods, grounded in rigorous mathematics, yet still accessible. The addition of a gradient-free optimization chapter is a welcome addition to the book.' John Whitefoot, University of Pittsburgh 'I've recommended this book to several students. It's a great resource for students who need to use optimization for practical purposes, such as a senior project or an assignment at their co-op job. The

book has a good balance between the underlying theory and the application of that theory to actual problems.' Diane Peters, University of Michigan

Optimization is a standard concept in engineering design, and in other disciplines which use mathematical decision-making methods. This textbook presents the key concepts and algorithms available for solving design optimization problems. Featuring simple examples, it is intended for fourth- or fifth-year students and professional engineers.

[Download to continue reading...](#)

Principles of Optimal Design: Modeling and Computation Plasticity: Modeling & Computation
Optimal Inventory Modeling of Systems: Multi-Echelon Techniques (International Series in
Operations Research & Management Science) Frame Design for Boat Tops: The How and Why for
Optimal Design and Construction Graphic Design Success: Over 100 Tips for Beginners in Graphic
Design: Graphic Design Basics for Beginners, Save Time and Jump Start Your Success (graphic ...
graphic design beginner, design skills) Probabilistic Graphical Models: Principles and Techniques
(Adaptive Computation and Machine Learning series) Atmospheric and Space Flight Dynamics:
Modeling and Simulation with MATLAB[®] and Simulink[®] (Modeling and Simulation in
Science, Engineering and Technology) Introduction to the Numerical Modeling of Groundwater and
Geothermal Systems: Fundamentals of Mass, Energy and Solute Transport in Poroelastic Rocks
(Multiphysics Modeling) Modeling Agency Tips: Get Listed with Fashion Modeling Agencies and
Find Your Dream Job 3ds Max Modeling for Games: Insider's Guide to Game Character, Vehicle,
and Environment Modeling: Volume I 3ds Max Modeling for Games: Insider's Guide to Game
Character, Vehicle, and Environment Modeling: 1 The Model's Bible & Global Modeling Agency
Contact List - An Insider's Guide on How to Break into the Fashion Modeling Industry Modeling
Dynamic Biological Systems (Modeling Dynamic Systems) Dynamic Modeling in the Health
Sciences (Modeling Dynamic Systems) Handbook of Digital Techniques for High-Speed Design:
Design Examples, Signaling and Memory Technologies, Fiber Optics, Modeling, and Simulation to
Ensure Signal Integrity Universal Principles of Design, Revised and Updated: 125 Ways to Enhance
Usability, Influence Perception, Increase Appeal, Make Better Design Decisions, and Teach through
Design Mathematical Programming: Introduction to the Design and Application of Optimal Decision
Machines (Management & Administration) Design, When Everybody Designs: An Introduction to
Design for Social Innovation (Design Thinking, Design Theory) Optimal Design of Experiments The
Lattice Boltzmann Equation for Fluid Dynamics and Beyond (Numerical Mathematics and Scientific
Computation)

Contact Us

DMCA

Privacy

FAQ & Help