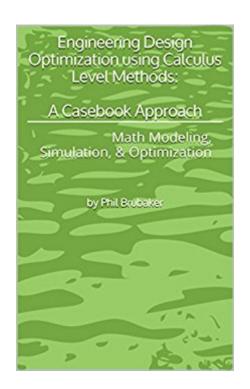


The book was found

Engineering Design Optimization Using Calculus Level Methods: A Casebook Approach: Math Modeling, Simulation, & Optimization





Synopsis

How to teach new problem solving technology to engineers and scientists? Problem solving requires a broad based knowledge in both math and science as well as discernment and flexibility to challenge the way it has always been done before. Generally, an objective driven design will yield the best design in the least amount of time. Companies need engineers trained in setting objectives before they begin the time-consuming process of formulating and testing new concepts and designs. This textbook considers design from the pragmatic concerns of industry. It utilizes casebook studies of math problems with their solutions in real life situations. Because it encourages students to view themselves as part of the design team, this text is the next best thing to an on-the-job training. It shows how setting objectives to problem solving assignments can help students complete work quickly and efficiently. But it also stresses that while every situation is different, the approach remains the same: objective-driven engineers state a math model and an objective function for a given problem while leaving the solving to a calculus-based computer language. The text attempts to fill a gap in educational material in the mathematical problem solving arena. Traditional texts leave students in a simulation thinking mode. Simulations require many computer runs causing delays in solution and little gain, if any, in problem understanding. Simulations require a numerical algorithm to be meshed with their math model. In such form, math models are hard to recognize and discuss. Besides slowing their understanding, users lose confidence in program solutions. In contrast, an objective function coupled with a simulation program model will move a problem from a simulation to an optimization problem. An optimization problem with a good numerical algorithm can reduce the number of computer runs to one, a nice time saver which results in increased productivity for industry. The textbook itself is the centerpiece to a comprehensive teaching and learning package that targets a single goal: to successfully demonstrate how identifying and setting objectives works in the real world, thus helping students to understand the concepts that motivate industrial designs.

Book Information

File Size: 4851 KB

Print Length: 138 pages

Publisher: Phil B Brubaker; 2 edition (May 10, 2016)

Publication Date: May 10, 2016

Sold by: A A Digital Services LLC

Language: English

ASIN: B01FICKYQE

Text-to-Speech: Not enabled

X-Ray: Not Enabled

Word Wise: Not Enabled

Lending: Enabled

Enhanced Typesetting: Not Enabled

Best Sellers Rank: #1,559,641 Paid in Kindle Store (See Top 100 Paid in Kindle Store) #65 inà Books > Engineering & Transportation > Engineering > Reference > Research #3271 inà Kindle Store > Kindle eBooks > Nonfiction > Science > Technology > General & Reference #19843 inà Â Books > Science & Math > Technology

Download to continue reading...

Engineering Design Optimization using Calculus Level Methods: A Casebook Approach: Math Modeling, Simulation, & Optimization Atmospheric and Space Flight Dynamics: Modeling and Simulation with MATLABà ® and Simulinkà ® (Modeling and Simulation in Science, Engineering and Technology) Molecular Simulation Studies on Thermophysical Properties: With Application to Working Fluids (Molecular Modeling and Simulation) Handbook of Digital Techniques for High-Speed Design: Design Examples, Signaling and Memory Technologies, Fiber Optics, Modeling, and Simulation to Ensure Signal Integrity Pyomo ¢â ¬â ¢ Optimization Modeling in Python (Springer Optimization and Its Applications) For Math tutors: 12 Full Length Practice Tests for the SAT Subject Math Level 2: SAT Subject Math Level 2 Practice Tests Math For Everyone Combo Book Hardcover: 7th Grade Math, Algebra I, Geometry I, Algebra II, Math Analysis, Calculus Biological Modeling and Simulation: A Survey of Practical Models, Algorithms, and Numerical Methods (Computational Molecular Biology) The Cross-Entropy Method: A Unified Approach to Combinatorial Optimization, Monte-Carlo Simulation and Machine Learning (Information Science and Statistics) Molecular Gas Dynamics: Theory, Techniques, and Applications (Modeling and Simulation in Science, Engineering and Technology) Soft Solids: A Primer to the Theoretical Mechanics of Materials (Modeling and Simulation in Science, Engineering and Technology) Simulation Modeling and Analysis (McGraw-Hill Series in Industrial Engineering and Management) Finite Mathematics and Calculus with Applications Plus MyMathLab with Pearson eText -- Access Card Package (10th Edition) (Lial, Greenwell & Ritchey, The Applied Calculus & Finite Math Series) Calculus On Manifolds: A Modern Approach To Classical Theorems Of Advanced Calculus Dr. John Chung's SAT II Math Level 2: SAT II Subject Test - Math 2 (Dr. John Chung's Math Book Series) Design of Hall Effect Gear Tooth Speed Sensors by Using Magnetic Field Simulation Cases and

Materials on Torts [Connected Casebook] (Looseleaf) (Aspen Casebook) (Aspen Casebook Series)

Modeling Behavior in Complex Public Health Systems: Simulation and Games for Action and

Evaluation Computational Electronics: Semiclassical and Quantum Device Modeling and Simulation

Applied Groundwater Modeling, Second Edition: Simulation of Flow and Advective Transport

Contact Us

DMCA

Privacy

FAQ & Help