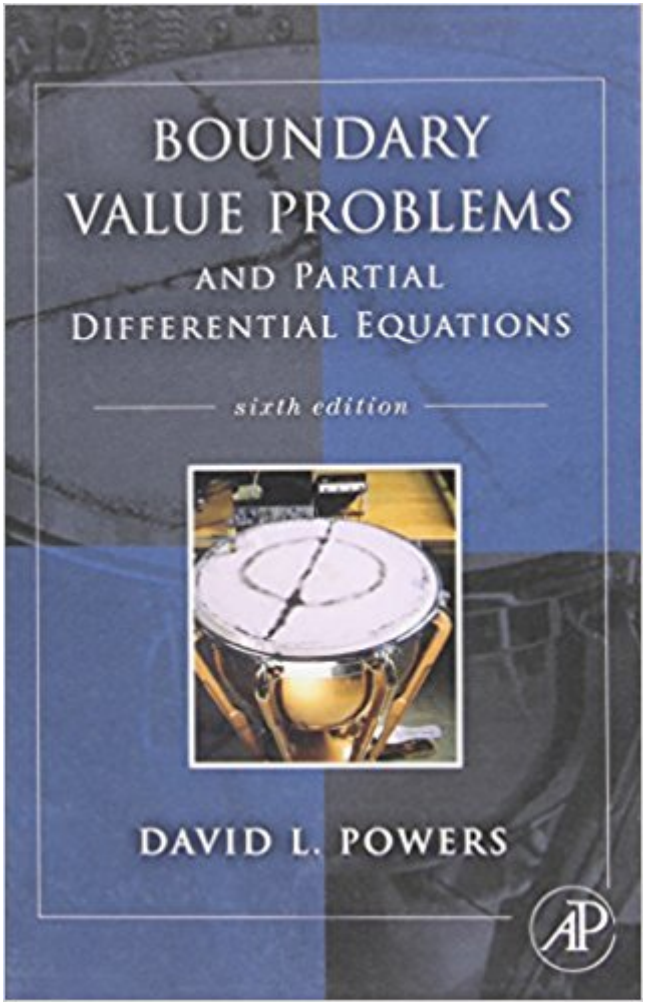
Boundary Value Problems, Sixth Edition: And Partial Differential Equations



Synopsis

Boundary Value Problems, Sixth Edition, is the leading text on boundary value problems and Fourier series for professionals and students in engineering, science, and mathematics who work with partial differential equations. In this updated edition, author David Powers provides a thorough overview of solving boundary value problems involving partial differential equations by the methods of separation of variables. Additional techniques used include Laplace transform and numerical methods. The book contains nearly 900 exercises ranging in difficulty from basic drills to advanced problem-solving exercises. Professors and students agree that Powers is a master at creating examples and exercises that skillfully illustrate the techniques used to solve science and engineering problems.Ancillary list: Online SSM- http://www.elsevierdirect.com/product.jsp?isbn=9780123747198 Online ISM- http://textbooks.elsevier.com/web/manuals.aspx?isbn=9780123747198 Companion site, Ebook- http://www.elsevierdirect.com/companion.jsp?ISBN=9780123747198 Student Solution Manual forÂ Sixth EditionÂ - https://www.elsevier.com/books/student-solutions-manual-boundary-value-problems/powers/978-0-12-375664-0New animations and graphics of solutions, additional exercises and chapter review questions on the webNearly 900 exercises ranging in difficulty from basic drills to advanced problem-solving exercises Many exercises based on current engineering applications

Book Information

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Customer Reviews

David Powers has taught applied mathematics for over 40 years. His research includes matrix

theory, graph theory and applications to biochemistry and engineering.

On the one hand, this book is linearly organized from Fourier series to the applications(but not well indexed). However, it only provides information you can find anywhere on the internet. When you go to the exercises, there is no explanation, and routinely ask you to perform abstract integrals that you would not necessarily know how to approach without knowing the approach ahead of time; the answers are just answers little or no explanation. Therefore, this isn't very useful, and you would do better with any book that explains the analysis and integration of anything more than the most basic cases, such as the Riley/Hobson/Bence text or the Schaum's outline for Fourier analysis.

Back in 2008 in my job at NASA Ames Research Center I was working on the theory and application of thermal capacitance (slug) calorimeters for heat flux measurement in arc jet testing of spacecraft heat shield material for atmospheric reentry. I knew the applicable partial differential equation for a slug calorimeter and I found references that gave the solution, but I could not find the derivation of the solution nor was I able to derive it on my own, even though I had studied partial differential equations in both an undergraduate math course and a graduate engineering course back in about 1980. I looked far and wide on the internet and also for any texts or references that could give me a clue how to complete the derivation that I was stuck on. After consulting many sources I finally found the guidance I needed to complete the derivation in an early edition of Professor David PowersÃ¢Â Â™ text that I found in the AmesÃ¢Â Â™ library. I got in touch with Professor Powers and shared with him my experience and thanked him for his text. Later that year I published a conference paper with co-authors Ricardo Olivares and Daniel Phillipidis entitled Ã¢Â ÂœThermal Capacitance (Slug) Calorimeter Theory Including Heat Losses and Other Decaying ProcessesÃ¢Â Â• which was also published as a NASA Technical Memorandum (TM), NASA/TMÃ¢Â Â“2008-215364 which is freely available on the web. I shared this with Professor Powers and in the next edition of his text book the following year (6th edition 2009) he included the thermal capacitance (slug) calorimeter as another real world example application of partial differential equations. The NASA TM was also cited in two Wiley handbooks in 2015, Mechanical Engineers' Handbook, Volume 4: Energy and Power, and Handbook of Measurement in Science and Engineering, both edited by Myer Kutz.

This is the required textbook for the class I am now taking (3/4 of the way done). Every once in a while you get a textbook that is so well written that you don't need the professor. This is one of

those books. In fact, our professor just basically reads the book to us. When you have the optimal teaching method there is no reason to improvise. BTW - I don't think less of my professor for following the book so closely. I appreciate that he doesn't try to ruin perfection.Learning from this book is VERY easy. The concepts are explained very well with worked examples and then there are many problems (with answers in the back) that cement your understanding - if you do the problems.This is an easy 5 stars. My biggest complaint is that the book's binding is cheap and rigid so it cracks.

This is a very well written book for beginners. The solutions for the examples are in full detail and is easy to follow. Great book to teach yourself the fundamentals to Fourier Series.

This was a great textbook. It taught me everything during an accelerated summer class I had in college. It is written very well so it is easy to understand. One of the best books I've had to learn from in college.

readable but it may skip some important parts that help you understand the materials but be redundant in other parts.

Good book for learning BVPs and Fourier series. The language in the book is very clear.

I'm sorry if you have to get this for class. Not well written, horrible explanations and examples (if one is even provided).

Boundary Value Problems: Computing and Modeling (4th Edition) Elementary Differential Equations and Boundary Value Problems , 8th Edition, with ODE Architect CD Fundamentals of Differential Equations and Boundary Value Problems (7th Edition) Elementary Differential Equations and Boundary Value Problems, 11th Edition Differential Equations with Boundary Value Problems (2nd Edition) Differential Equations with Boundary-Value Problems, 8th Edition Elementary Differential Equations with Boundary Value Problems (2nd Edition) (Kohler/Johnson) Elementary Differential Equations with Boundary Value Problems (6th Edition) Elementary Differential Equations and Boundary Value Problems Differential Equations with Boundary-Value Problems Student Solutions Manual: Elementary Differential Equations & Boundary Value Problems Elementary Differential Equations with Boundary Value Problems (Kohler/Johnson)