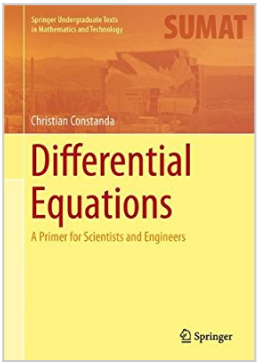

Differential Equations: A Primer for Scientists and Engineers (Springer Undergraduate Texts in Mathematics and Technology)

By Christian Constanda

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Differential Equations for Scientists and Engineers is a book designed with students in mind. It attempts to take a concise, simple, and no-frills approach to differential equations. The approach used in this text is to give students extensive experience in main solution techniques with a lighter emphasis on the physical interpretation of the results. With a more manageable page count than comparable titles, and over 400 exercises that can be solved without a calculating device, this book emphasizes the understanding and practice of essential topics in a succinct fashion. At the end of each worked example, the author provides the Mathematica commands that can be used to check the results and where applicable, to generate graphical representations. It can be used independently by the average student, while those continuing with the subject will develop a fundamental framework with which to pursue more advanced material. This book is designed for undergraduate students with some basic knowledge of precalculus algebra and a first course in calculus.

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Editorial Review

Review

From the reviews:

“The author of this book does a does a very creditable job of providing the basic material of ordinary differential equations. … The book is largely aimed at average students in mathematics, science or engineering. The author suggests that stronger students can use the text as a bridge to more specialized books or more advanced courses. … There are many exercises.” (William J. Satzer, MAA Reviews, November, 2013)

“The author writes this book respecting his readers and caring about the way of exposing his ideas. The book is written in a style that uses words as a bonding agent between consecutive mathematical passages, which creates a pleasant and comfortable lecture. … The book contains 232 worked examples and 810 exercises. … We kindly recommend this book to future engineers and scientists as well as to all those interested in the topic, who encounter differential equations in their professional work.” (Alexandru Negrescu, zbMATH, Vol. 1272, 2013)

From the Back Cover

Differential Equations: A Primer for Scientists and Engineers is a textbook designed with the needs of today’s student in mind. It is the ideal textbook for a first course in elementary differential equations for future engineers and scientists, including mathematicians. This book is accessible to anyone who has a basic knowledge of precalculus algebra and differential and integral calculus. Its carefully crafted text adopts a concise, simple, no-frills approach to differential equations, which helps students acquire a solid experience in many classical solution techniques. With a lighter accent on the physical interpretation of the results, a more manageable page count than comparable texts, a highly readable style, and over 800 exercises designed to be solved without a calculating device, this book emphasizes the understanding and practice of essential topics in a succinct yet fully rigorous fashion.

The book formally splits the "pure" and "applied" parts of the contents by placing the discussion of selected mathematical models in separate chapters. At the end of most of the 230 worked examples, the author provides the *Mathematica*® commands for verifying the results. The book can be used independently by the average student to learn the fundamentals of the subject, while those interested in pursuing more advanced material can regard it as an easily taken first step on the way to the next level. Additionally, practitioners who encounter differential equations in their professional work will find this text to be a convenient source of reference.

Other Springer publications by Christian Constanda: *Dude, Can you Count?* ISBN: 978-1-84882-538-3; *Stationary Oscillations of Elastic Plates*, ISBN: 978-0-8176-8340-8.

Christian Constanda, MS, PhD, DSc, is the holder of the Charles W. Oliphant Endowed Chair in Mathematical Sciences at the University of Tulsa, USA. He is also the Chairman of the International Consortium on Integral Methods in Science and Engineering (IMSE).

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