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Advanced engineering mathematics with MATLAB. 2nd ed.

Boca Raton, FL: Chapman and Hall/CRC. xv, 818 p. (2003).

This is the revised 2nd edition of the original edition published in 1998. It is important to note that the author has revised his first edition within 5 years, which shows that the book has received good response from Engineering Faculty staff and students. This is because, the author has devoted his book to such problems that have interesting engineering applications. So while selecting examples for this purpose, the author has relied on recent research papers published by different authors in research journals. This is not found in the books published on this topics by other authors. The reviewer observed that 3 chapters on 1) The Fourier transform, 2) The Z -transform, 3) The Hilbert transform are new topics added to this book. These are not found in other books on similar topics. Another important aspect of this book are the interesting photos of several mathematicians who contributed to these topics in the 17th and 18th centuries, and a short account of their contributions. Earlier, such an information was found only in two volumes published by *E. T. Bell* [Men of mathematics, London (1953; Zbl 0052.24702) and New York (1927; JFM 63.0793.03)]. Engineering students rarely read such general knowledge books. This book is now divided into the following chapters. Ch. 1: Complex variable, Ch. 2,3: Ordinary differential equations, Ch. 4,5: Fourier series, Fourier transform, Ch. 6: The Laplace transform, Ch. 7: The Z -transform, Ch. 8: The Hilbert transform, Ch. 9: The Sturm-Liouville transform, Ch. 10, 11, 12: The wave, the heat and the Laplace equation, Ch. 13, 14: Vector calculus and linear algebra. A large number of examples are solved as model applications at the end of each topic and also a good number of examples are added for students to solve these exercises. The reviewer is quite confident that with this mathematical preparation and background, the Engineering student can easily solve new problems. The most important addition to each chapter is the mathematical software package MATLAB relevant to that topic which is added to this 2nd edition. It is taken from the MATLAB computer software package.

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Classification: I15 N85

Keywords: ordinary differential equations; vector calculus; Fourier series; Fourier transform; Laplace transform; Z -transform; Hilbert transform; Sturm-Liouville transform; Laplace equation; MATLAB