Advanced Guide to MATLAB: Practical Examples in Science and Engineering

By S. N. Alam, S. Islam, S. K. Patel

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A sequel to Understanding MATLAB: A Textbook For Beginners, which has been published earlier, this book is an advanced-level guide to MATLAB with a number of applications in science and engineering. There are a number of solved problems from all important areas of science and engineering to give enough practice to the reader. MATLAB integrates computation, visualization and programming in a very user-friendly and easy-to use environment. This book is mainly aimed at those who already know the basics of the language and would like to use MATLAB to solve advanced engineering problems. Here, in this book, the authors have tried to illustrate the advanced features of MATLAB. Salient Features: Provides a crisp discussion on the history and evolution of MATLAB Discusses the MATLAB compiler and how it works Detailed treatment of Numbers, Matrices and Matrix operations Dedicated chapters on Plotting, Image Processing, and Animations, Sounds and Movies Comprehensive coverage of Numerical Methods. A separate Dictionary of Additional Terms at the end of the book A separate chapter on Solved Problems Step by step discussion of solved problems Abundant sample codes, algorithms, and flowcharts. Contents: 1. History of computers, computer languages and MATLAB 2. The compiler 3. Numbers, review of matrices and matrix operations 4. Plotting using MATLAB 5. Image processing using MATLAB 6. Animation, sound and movies using MATLAB 7. Numerical methods using MATLAB 8. Unconstrained single variable optimization methods 9. Statistical functions 10. Dictionary of additional terms 11. Index.

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Editorial Review

About the Author
S. N. Alam received his B.Tech in 1997 from the Indian Institute of Technology, Kharagpur, in Metallurgical and Materials Engineering and his M.S. in Photonics and Electronic Materials in the year 2001 from the Chemical and Nuclear Engineering Department of the University of Massachusetts, Lowell, USA. He did his Ph.D. in the year 2010 in Metallurgical and Materials Engineering Department, Indian Institute of Technology, Kharagpur. He is currently an Assistant Professor at the National Institute of Technology-Rourkela, Orissa. He has also taught as a Lecturer in the Mechanical Engineering Department at BITS-Pialni. Sanjib Islam is a senior technology leader dynamic and highly accomplished. He has been providing IT, project management, business process, and infrastructure solutions to companies, (ex. Upland Software, Accenture, Fidelity Investments, Lucent Technologies) spanning a broad array of industries for over the past 20 years. He earned his M.S. in Engineering from Case Western Reserve University, USA and B. Tech (Hons) in Engineering from IIT, Kharagpur. He is a SUN Certified Enterprise Architect. He also got his MBA from University of Massachusetts - Lowell, USA. S.K. Patel is working as Associate Professor in Mechanical Engineering Department of National Institute of Technology, Rourkela. He graduated in Mechanical Engineering from National Institute of Technology, Rourkela in the year 1985. Initially he served with Hindustan Aeronautics Limited, Koraput Division, Sunabeda for 5 years. He obtained his M. Tech degree from Indian Institute of Technology Madras, Chennai and Ph.D. degree from Indian Institute of Technology Kharagpur. His broad areas of academic interest are statistical quality control, optimization and industrial engineering and management.

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