Review of the Book on Fluid Mechanics : Problem Solving Using MATLAB

By

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https://www.phindia.com/Books/BookDetail/9789389347623/fluid-mechanics-kumar-raju

Fluid mechanics is an essential subject for many science and engineering students. Surprisingly, there are a considerable number of books on Fluid Mechanics. Some of these books offer a sound understanding of fundamental principles, whereas some books cover many applied problems based on these. The book on Fluid Mechanics by Prof. Srinivasa Raju, Department of Civil Engineering, BITS Pilani Hyderabad Campus, Hyderabad and Prof. Nagesh Kumar, Department of Civil Engineering, Indian Institute of Science, Bangalore is the first book of its kind, which not only integrates the fundamentals with applied problems but provides a much-needed thrust on problem-solving. MATLAB codes are developed for all the solved problems in the book. Twelve videos (which is placed along with MATLAB codes at learning centre section of Prentice Hall of India web site) provide a better understanding of the developed codes.

The problems discussed at the end of each chapter have been very carefully formulated and provide solutions to the field problems incorporated by engineers. The distinguishing feature of this book is that all numerical problems in all the chapters have been solved using MATLAB in the very user-friendly manner

There is a balanced coverage of several topics, and the users can develop the skill to compute various quantities of interest including forces in bends as well as on bluff bodies, losses in flow transmission through pipes and in the boundary layer, shear stress, boundary layer including displacement, energy and momentum thickness. Graphical display of flow nets will create more interest in learning the topics like potential flow including velocity potential and stream function. Efficient solution for problems demanding iterative procedures is possible only with a book of this kind. Some important topics like network analysis using Hardy-Cross Method and Gradually Varied Flow (GVF) profile computations can also be documented and basic properties of fluids can be listed in appendix in the upcoming editions of the book so that its utility can be further enhanced.

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