Applied Mathematics for Science and Engineering

Description: This book was designed to prepare students in the applied sciences and engineering for both analytic and numerical solutions of problems arising in post-graduate studies and in industrial practice. It includes examples and problems from biology, chemistry, and physics, as well as from most engineering disciplines and the presentation accommodates the learning styles of contemporary students. The book covers topics not found in similar texts, including integro-differential equations, treatment of time-series data, and the calculus of variations. It also includes some recently developed methods (both analytic and numerical) such as the variational iteration method (VIM) developed by J. H. He, which can be applied to ordinary differential equations, integro-differential equations, and differential-difference equations. Although commercial software packages are mentioned (e.g., COMSOL and Mathcad) and used for some examples, the presentation is not tied to the use of any particular software.

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