Librería Bonilla y Asociados





Título: Partial Differential Equations With Numerical Methods

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Sinopsis

This is the softcover reprint of the very popular hardcover edition. The book is suitable for advanced undergraduate and beginning graduate students of applied mathematics and engineering. The main theme is the integration of the theory of linear PDEs and the numerical solution of such equations. For each type of PDE, elliptic, parabolic, and hyperbolic, the text contains one chapter on the mathematical theory of the differential equation, followed by one chapter on finite difference methods and one on finite element methods. As preparation, the two-point boundary value problem and the initial-value problem for ODEs are discussed in separate chapters. There is also one chapter on the elliptic eigenvalue problem and eigenfunction expansion. The presentation does not presume a deep knowledge of mathematical and functional analysis. Some background on linear functional analysis and Sobolev spaces, and also on numerical linear algebra, is reviewed in two appendices.