Título:

Autor:

Editorial:

Tema:

Sinopsis

Precio: $1315.63

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ISBN: 9789491216497

Prerequisites of only calculus and linear algebra
Self-contained and rigorous treatment of the mathematics of approximation
Includes new results,in particular those on local spline interpolation, and its connection to quadrature
A new method of proof of the Euler-Maclaurin formula is presented
The topic of quadrature formulas and their error analysis is given an extensive treatment
The Weierstrass theorem is rigorously proved for both algebraic and trigonometric polynomials
Both Fourier series and the Gram-Schmidt procedure are developed from best approximation
The approximation of a continuous function by either an algebraic polynomial, a trigonometric polynomial, or a spline, is an important issue in application areas like computer-aided geometric design and signal analysis. This book is an introduction to the mathematical analysis of such approximation, and, with the prerequisites of only calculus and linear algebra, the material is targeted at senior undergraduate level, with a treatment that is both rigorous and self-contained. The topics include polynomial interpolation; Bernstein polynomials and the Weierstrass theorem; best approximations in the general setting of normed linear spaces and inner product spaces; best uniform polynomial approximation; orthogonal polynomials; Newton-Cotes , Gauss and Clenshaw-Curtis quadrature; the Euler-Maclaurin formula ; approximation of periodic functions; the uniform convergence of Fourier series; spline approximation,with an extensive treatment of local spline interpolation,and its application in quadrature. Exercises are provided at the end of each chapter
Content Level » Graduate

Keywords » Best approximation - Fourier series - Polynomial approximation - Quadrature - Spline approximation

Related subjects » Analysis - Computational Intelligence and Complexity - Computational Science & Engineering - Mathematics - Theoretical Computer Science