



Numerical Analysis: A Mathematical Introduction

By Directeur de Recherche Au Cnrs Michelle Schatzman, M Schatzman

Oxford University Press, United Kingdom, 2002. Paperback. Book Condition: New. 237 x 157 mm. Language: English . Brand New Book ***** Print on Demand *****.Numerical analysis explains why numerical computations work, or fail. This book is divided into four parts. Part I starts with a guided tour of floating number systems and machine arithmetic. The exponential and the logarithm are constructed from scratch to present a new point of view on questions well-known to the reader, and the needed knowledge of linear algebra is summarized. Part II starts with polynomial approximation (polynomial interpolation, mean-square approximation, splines). It then deals with Fourier series, providing the trigonometric version of least square approximations, and one of the most important numerical algorithms, the fast Fourier transform. Any scientific computation program spends most of its time solving linear systems or approximating the solution of linear systems, even when trying to solve non-linear systems. Part III is therefore about numerical linear algebra, while Part IV treats a selection of non-linear or complex problems: resolution of linear equations and systems, ordinary differential equations, single step and multi-step schemes, and an introduction to partial differential equations. The book has been written having in mind the...



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