Поиск

Главная → Книги → Математика → Вычислительная математика

Lectures on Advanced Numerical Analysis

06.10.2007

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Год изд.: 1966

Описание: A large number of mathematical books begin as lecture notes; but, since mathematicians are busy, and since the labor required to bring lecture notes up to the level of perfection which authors and the public demand of formally published books is very considerable, it follows that an even larger number of lecture notes make the transition to book form only after great delay or not at all. The present lecture note series aims to fill the resulting gap. It will consist of reprinted lecture notes, edited at least to a satisfactory level of completeness and intelligibility, though not necessarily to the perfection which is expected of a book. In addition to lecture notes, the series will include volumes of collected reprints of journal articles as current developments indicate, and mixed volumes including both notes and reprints.

Оглавление:

Формат: djvu
Размер: 1160345 байт
Язык: ENG
Рейтинг: 24 ⁰·⁰¹

These Lectures on Numerical Analysis are essentially lectures notes of a course on "Advanced Numerical Methods" which the author gave in 1956-57 at the Institute of Mathematical Sciences at New York University. The original notes, prepared by S. d'Ambra and S. Locke, were distributed by the Institute for a number of years in mimeographed form. In the practice of numerical analysis it is important to be aware that computed solutions are not exact mathematical solutions. The precision of a numerical solution can be diminished in several subtle ways. Understanding these difficulties can often guide the practitioner in the proper implementation and/or development of numerical algorithms. Definition 1.1 Suppose x is an approximation to x*. The absolute error is Ex = |x* -x|. And the relative error is REx that x*≠0 . 2. Advanced Numerical Methods and Their Applications to Industrial Problems. — Adaptive Finite Element Methods. Lecture Notes Summer School Yerevan State University Yerevan, Armenia. 2004. Alfred Schmidt, Arsen Narimanyan Center for Industrial Mathematics. 3 Functional analysis background 3.1 Banach spaces and Hilbert spaces . . . 3.2 Basic concepts of Lebesgue spaces . . . 3.3 Weak derivatives . . .