Introduction to Nonlinear Differential and Integral Equations (Paperback)

Reviews

Most of these ebook is the perfect publication accessible. It is written in easy terms and not difficult to understand. It is extremely difficult to leave it before concluding, once you begin to read the book. (Anastasia Kihn)
Brand New Book ***** Print on Demand *****.2014 Reprint of 1960 Edition. Full facsimile of the original edition. Not reproduced with Optical Recognition Software. Within recent years interest in nonlinear equations has grown enormously. They are extremely important as basic equations in many areas of mathematical physics, and they have received renewed attention because of progress in their solution by machines. This volume undertakes a definition of the field, indicating advances that have been made up through 1960. The author’s position is that while the advent of machines has resulted in much new knowledge, one should not disregard analytical methods, since the solution of nonlinear equations possesses singularities which only the analytical method (as based upon the work of Poincare, Liapounoff, Painleve and Goursatl) can discover. After a general survey of the problem presented by nonlinear equations, the author discusses the differential equation of the first order, following this by chapters on the Riccati equation (as a bridge between linear and nonlinear equations) and existence theorems, with special reference to Cauchy’s method. Second order equations are introduced via Volterra’s problem and the problem of pursuit, and succeeding chapters cover elliptic integrals and functions and theta functions; differential equations of the second order; and second order differential equations of the polynomial class, with special reference to Painlevé transcendents. The technique of continuous analytical continuation is shown, while phenomena of the phase plane are studied as an introduction to nonlinear mechanics.

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