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Nota di contenuto	Front matter -- Preface -- Contents -- 1 Approximation in Orlicz Spaces -- 2 Polya Algorithms in Orlicz Spaces -- 3 Convex Sets and Convex Functions -- 4 Numerical Treatment of Non-linear Equations and Optimization Problems -- 5 Stability and Two-stage Optimization Problems -- 6 Orlicz Spaces -- 7 Orlicz Norm and Duality -- 8 Differentiability and Convexity in Orlicz Spaces -- 9 Variational Calculus -- Bibliography -- List of Symbols -- Index
Sommario/riassunto	This is an essentially self-contained book on the theory of convex functions and convex optimization in Banach spaces, with a special interest in Orlicz spaces. Approximate algorithms based on the stability principles and the solution of the corresponding nonlinear equations are developed in this text. A synopsis of the geometry of Banach spaces, aspects of stability and the duality of different levels of differentiability and convexity is developed. A particular emphasis is placed on the geometrical aspects of strong solvability of a convex optimization problem: it turns out that this property is equivalent to local uniform convexity of the corresponding convex function. This

treatise also provides a novel approach to the fundamental theorems of Variational Calculus based on the principle of pointwise minimization of the Lagrangian on the one hand and convexification by quadratic supplements using the classical Legendre-Ricatti equation on the other. The reader should be familiar with the concepts of mathematical analysis and linear algebra. Some awareness of the principles of measure theory will turn out to be helpful. The book is suitable for students of the second half of undergraduate studies, and it provides a rich set of material for a master course on linear and nonlinear functional analysis. Additionally it offers novel aspects at the advanced level. From the contents: Approximation and Polya Algorithms in Orlicz Spaces Convex Sets and Convex Functions Numerical Treatment of Non-linear Equations and Optimization Problems Stability and Two-stage Optimization Problems Orlicz Spaces, Orlicz Norm and Duality Differentiability and Convexity in Orlicz Spaces Variational Calculus