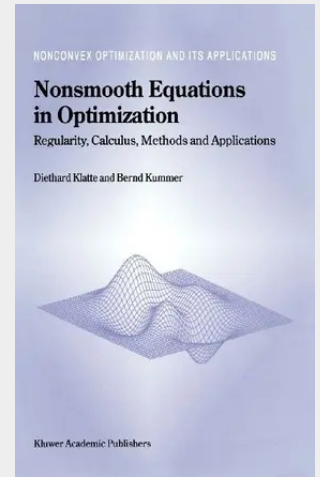


Nonsmooth Equations in Optimization

Regularity, Calculus, Methods and Applications

Many questions dealing with solvability, stability and solution methods for variational inequalities or equilibrium, optimization and complementarity problems lead to the analysis of certain (perturbed) equations. This often requires a reformulation of the initial model being under consideration. Due to the specific of the original problem, the resulting equation is usually either not differentiable (even if the data of the original model are smooth), or it does not satisfy the assumptions of the classical implicit function theorem. This phenomenon is the main reason why a considerable analytical instrument dealing with generalized equations (i.e., with finding zeros of multivalued mappings) and nonsmooth equations (i.e., the defining functions are not continuously differentiable) has been developed during the last 20 years, and that under very different viewpoints and assumptions. In this theory, the classical hypotheses of convex analysis, in particular, monotonicity and convexity, have been weakened or dropped, and the scope of possible applications seems to be quite large. Briefly, this discipline is often called nonsmooth analysis, sometimes also variational analysis. Our book fits into this discipline, however, our main intention is to develop the analytical theory in close connection with the needs of applications in optimization and related subjects. Main Topics of the Book 1. Extended analysis of Lipschitz functions and their generalized derivatives, including "Newton maps" and regularity of multivalued mappings. 2. Principle of successive approximation under metric regularity and its application to implicit functions.

Many questions dealing with solvability, stability and solution methods for variational inequalities or equilibrium, optimization and complementarity problems lead to the analysis of certain (perturbed) equations. This often requires a reformulation of the initial model being under consideration. Due to the specific of the original problem, the resulting equation is usually either not differentiable (even if the data of the original model are smooth), or it does not satisfy the assumptions of the classical implicit function theorem. This phenomenon is the main reason why a considerable analytical instrument dealing with generalized equations (i.e., with finding zeros of multivalued mappings) and nonsmooth equations (i.e., the defining functions are not continuously differentiable) has been developed during the last 20 years, and that under very different viewpoints and assumptions. In this theory, the classical hypotheses of convex analysis, in particular, monotonicity and convexity, have been weakened or dropped, and the scope of possible applications seems to be quite large. Briefly, this discipline is often called nonsmooth analysis, sometimes also variational analysis. Our book fits into this discipline, however, our main intention is to develop the analytical theory in close connection with the needs of applications in optimization and related subjects. Main Topics of the Book 1. Extended analysis of Lipschitz functions and their generalized derivatives, including "Newton maps" and regularity of multivalued mappings. 2. Principle of successive approximation under metric regularity and its application to implicit functions.



160,49 €

149,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9781402005503

Medium: Buch

ISBN: 978-1-4020-0550-3

Verlag: Humana

Erscheinungstermin: 31.05.2002

Sprache(n): Englisch

Auflage: Erscheinungsjahr 2002

Serie: Nonconvex Optimization and Its Applications

Produktform: Gebunden

Gewicht: 1530 g

Seiten: 333

Format (B x H): 160 x 241 mm

