Record Nr. UNINA9910778253603321
Autore Zalinescu C. <1952->

Titolo Convex analysis in general vector spaces [[electronic resource] /] / C

Zalinescu

Pubbl/distr/stampa River Edge, N.J.;; London,: World Scientific, c2002

ISBN 981-277-709-1

Descrizione fisica 1 online resource (xx, 367 p.)

Disciplina 515/.8

Soggetti Convex functions

Convex sets

Functional analysis Vector spaces

Lingua di pubblicazione Inglese

Formato Materiale a stampa

Livello bibliografico Monografia

Note generali Bibliographic Level Mode of Issuance: Monograph

Nota di bibliografia Includes bibliographical references (p. 349-357) and index.

Nota di contenuto

ch. 1. Preliminary results on functional analysis. 1.1. Preliminary notions and results. 1.2. Closedness and interiority notions. 1.3. Open mapping theorems. 1.4. Variational principles. 1.5. Exercises. 1.6. Bibliographical notes -- ch. 2. Convex analysis in locally convex spaces. 2.1. Convex functions. 2.2. Semi-continuity of convex functions. 2.3. Conjugate functions. 2.4. The subdifferential of a convex function. 2.5. The general problem of convex programming. 2.6. Perturbed problems. 2.7. The fundamental duality formula. 2.8. Formulas for conjugates and e-subdifferentials, duality relations and optimality conditions. 2.9. Convex optimization with constraints. 2.10. A minimax theorem. 2.11. Exercises. 2.12. Bibliographical notes -- ch. 3. Some results and applications of convex analysis in normed spaces. 3.1. Further fundamental results in convex analysis. 3.2. Convexity and monotonicity of subdifferentials. 3.3. Some classes of functions of a real variable and differentiability of convex functions. 3.4. Well conditioned functions. 3.5. Uniformly convex and uniformly smooth convex functions. 3.6. Uniformly convex and uniformly smooth convex functions on bounded sets. 3.7. Applications to the geometry of normed spaces. 3.8. Applications to the best approximation problem. 3.9. Characterizations of convexity in terms of smoothness. 3.10. Weak sharp minima, well-behaved functions and global error bounds for

Sommario/riassunto

convex inequalities. 3.11. Monotone multifunctions. 3.12. Exercises. 3.13. Bibliographical notes.

This text seeks to present the conjugate and sub/differential calculus using the method of perturbation functions in order to obtain the most general results in this field. Its secondary aim is to provide important applications of this calculus and of the properties of convex functions.