National University of Water Management and Nature Resources Use (Ukraine)

BOOK REVIEW

Ultimate Equilibrium of RC Structures Using Mini-Max Principle

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The book "Ultimate Equilibrium of RC Structures Using Mini-Max Principle," written by Prof. I. Iskhakov and Prof. Y. Ribakov, summarizes some experimental and theoretical results of reinforced concrete structures investigation. The authors successfully use the mini-max principle for design of spatial and plane RC structures. The mini-max principle is based on classic equilibrium method and combines static and kinematic approaches. Therefore this principle is an effective way for realizing the unity theorem of the limit equilibrium method, which joints the static and kinematic approaches.

The method allows using theorems of both approaches simultaneously in the same calculation and enables to obtain the exact value of structural bearing capacity without its over- or under- estimation

From mathematical viewpoint, the mini-max principle provides an additional equation that was missing in structural mechanics for obtaining a close solution of the load bearing capacity problem. Using this principle the book includes exact solutions of some problems that previously could be solved just approximately. Additionally, new static and dynamic problems in structural mechanics were solved.

The mini-max principle that was known as a mathematical method, applied in games theory, was for the first time used in this book for solving specific physical problems. I can be successfully developed for solving general problems in mechanics of deformable bodies.

This monograph is suitable for researchers, engineers and graduate students, studying civil and structural engineering.

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