



Basic Principles of Concrete Structures

By Xianglin Gu, Xianyu Jin, Yong Zhou



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Based on the latest version of designing codes both for buildings and bridges (GB50010-2010 and JTG D62-2004), this book starts from steel and concrete materials, whose properties are very important to the mechanical behavior of concrete structural members. Step by step, analysis of reinforced and prestressed concrete members under basic loading types (tension, compression, flexure, shearing and torsion) and environmental actions are introduced. The characteristic of the book that distinguishes it from other textbooks on concrete structures is that more emphasis has been laid on the basic theories of reinforced concrete and the application of the basic theories in design of new structures and analysis of existing structures. Examples and problems in each chapter are carefully designed to cover every important knowledge point. As a basic course for undergraduates majoring in civil engineering, this course is different from either the previously learnt mechanics courses or the design courses to be learnt. Compared with mechanics courses, the basic theories of reinforced concrete structures cannot be solely derived by theoretical analysis. And compared with design courses, this course emphasizes the introduction of basic theories rather than simply being a translation of design specifications. The book will focus on both the theoretical derivations and the engineering practices.

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Editorial Review

From the Back Cover

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Professor (7/2000 to Now): Department of Building Engineering, Tongji University

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"Structural assessment and appraisal theories and technologies for life cycle maintenance of buildings." First prize of Advances in science and technology of Shanghai metropolitan, 2009

"Integration and demonstration of conservation-based campus development technologies." First prize of the Science and Technology Progress Award for High Schools, 2008

"Structural assessment and appraisal standards for existing buildings." Third prize of Advances in science and technology of Shanghai metropolitan, 2006

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