



THEORY

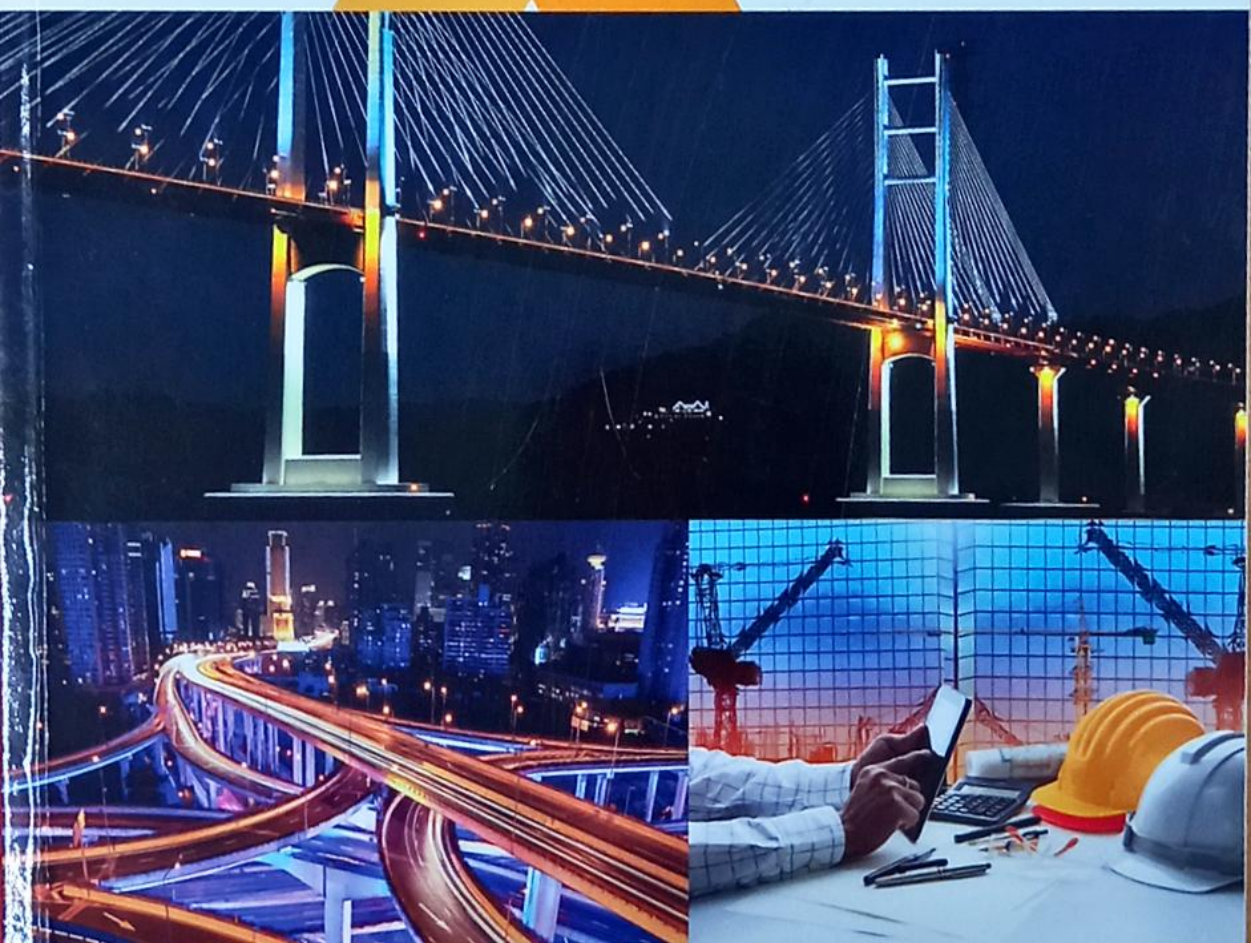


PRACTICE



TECHNIQUES

Theory, Practice and Techniques in **Civil Engineering**



3G E-LEARNING

Theory, Practice and Techniques in Civil Engineering

THEORY, PRACTICE AND TECHNIQUES IN CIVIL ENGINEERING



3G E-LEARNING

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Theory, Practice and Techniques in Civil Engineering

The world is going through some reflective changes: automation and general improvement of productivity is ensuing in the abundance of industrial products, the dominance of global economy and politics is challenged by the rise of the global economies, climate change is requiring a modification of the energy system, demographic changes are resulting in an ageing society, and finally, the electronic communication revolution is changing the ways in which elements in a society are held together influencing all aspects of economy, research, learning, living, media etc. Structural engineers face significant challenges in the 21st century and among them, global environmental challenges must be a priority for our profession. The growing need to address these challenges has become more accepted in the last decade and civil engineers have begun to play an important role. On earth with limited natural resources and an ever-growing built environment, engineers of the future must consider the environmental, economic, and social sustainability of structural design. To achieve a more sustainable built environment, engineers must be involved at every stage of the process. Civil engineers and their forerunners have been determining the infrastructure of societies for eras. In the last two decades the need for solving complex problems has led to the development and use of advanced quantitative methods of modeling and analysis. For example, the versatile finite element method has proved to be valuable in problems of stability, deformation, earthquake response analysis etc. The rapid development of computers and computing methods has facilitated the use of such methods. However, it is well known that the information derived from sophisticated methods of analysis will be useful only if comprehensive inputs data are available and only if the data are reliable. Thus, the question of uncertainty and randomness of data is central to design and analysis in civil engineering.

This book entitled "Theory, Practice and Techniques in Civil Engineering" discusses the importance of civil engineering in the history of civilization, explores problems civil engineers face each day, and outlines some modern undertakings in the field. covers emerging trends in civil engineering technology, the expected growth of various forms of infrastructure and developments in other disciplines of engineering where Civil Engineering plays an important supporting role. It explores how the enumerated trends will impact the civil engineering work and where civil engineers will be able to contribute. While the relative contribution of the construction industry to the jobs creation and economic growth will continue to decline, there are substantial opportunities in comparison with some other engineering industries, in particular in the area of climate change and globalization. There are some lessons; in particular with earthquake engineering – the notion of resilience – then can be borrowed by economics and finance.

