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Modern Design and Construction in Building, Bridge and Dam Engineering

Collection Editor: Dr Khaled Ghaedi
Contact Emails: khaled@pasofal.com and pasofal@gmail.com

Description:

The advancement of computational techniques and the increasing utilization of computers have endorsed excessive developments in structural engineering design and construction. Indeed, the orientation and design of many new, modern structures might not have been possible without the employment of innovative computational methods and numerical analysis. The more traditional style of learning from structural failures has disappeared because of the benefits of computational and numerical approaches considering 3D modeling procedures. Innovations in materials and practices have had a huge impact on the engineering world.

Advanced techniques in solving engineering problems such as fatigue, composite materials, fracture mechanics, structural control systems, seismic engineering, and thermal effects on structures and materials have been intensively employed in recent decades. On the one hand, the scale and profundity of knowledge existing today and the growing range of modern and complex structures have led to an increase in the expertise of structural engineers, but, on the other, such state-of-the-art methods might not guarantee a sustainable and environmentally-friendly structure.

This volume discusses such state-of-the-art design and construction methods in the field of civil and structural engineering. It considers the design and construction of civil structures such as buildings, bridges, stadiums, and transmission towers using the most recent engineering tools, technologies and methods, including, but not limited to, artificial intelligence, HoloLens, virtual and mixed reality, building information modelling and management, and performance-based design.

In short, this volume investigates new tools, technologies and methods that are being developed with accurate planning, design, and construction such that they reduce the time and expenses of projects while management, operation quality, and overall sustainability are maintained.

What Should the Submitted Chapters Consider?

Modern structures and materials;
Innovative design and construction;
New technologies in structural design;
Advanced modelling techniques;
Material and analysis methods;
Smart materials and structures;

Engineering collaboration to build modern structures;
Creative design;
Tall and special structures;
Architectures, engineers and modernity;
Intelligent structures;
Environmentally-friendly structures;
Sustainability;
Virtual and mixed reality;
Digital twin technology;
Development of self-repairable structures;
Structural repairs;
Structural health monitoring (SHM);
Artificial intelligence;
Remote sensing;
Unmanned aerial systems;
Performance-based design (PBD);
Finite element methods (FEM);
Computational fluid dynamics (CFD);
Building information modeling (BIM).

About the Editor:

Dr Khaled Ghaedi is the founder and Principal of PASOFAL Engineering Group (https://pasofal.com/), a group dedicating to solving the most complex engineering problems. Dr Ghaedi has worked in both academia and industry for over 16 years, and has provided consultation for major projects such as the MRT Putrajaya Line and Pavilion Damansara Heights in Malaysia, among others. He is the author of several books and papers, and his work has been published in a number of well-known journals in different engineering fields such as earthquake engineering, finite element analysis, computational fluid dynamics, and damage assessment of buildings. He is currently the Structural Technical Director of an engineering software and solutions provider in Malaysia which supports professional engineers and engineering students in Southeast Asia.

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Contributions should be scholarly based, rather than anecdotal or unverifiable.

Contributions must be wholly in English, excluding footnotes, appendices, and short extracts for translation.

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If you have any questions about the collection, prior to your submission, please contact the Editor.

Timeline:

Deadline for abstracts: 1st November, 2021
Deadline for full chapters: 25th February, 2022

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