**Lecture Notes in Civil Engineering** 

Bashar S. Mohammed · Nasir Shafiq · Shamsul Rahman M. Kutty · Hisham Mohamad · Abdul-Lateef Balogun *Editors* 

# ICCOEE2020

Proceedings of the 6th International Conference on Civil, Offshore and Environmental Engineering (ICCOEE2020)



## **Lecture Notes in Civil Engineering**

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#### **Preface**

This book contains papers presented in the 6th International Conference on Civil, Offshore and Environmental Engineering (ICCOEE2020) under the banner of World Engineering, Science and Technology Congress (ESTCON2020) held on 13–15 July 2021 at Borneo Convention Centre, Kuching, Malaysia. The ICCOEE series of conferences started in Kuala Lumpur, Malaysia, in 2012.

The main objective of the ICCOEE is to provide a platform for academia and industry to showcase their latest advancements and findings in the broad disciplines of civil, offshore and environmental engineering with an emphasis on the looming Industrial Revolution 4.0. The conference also provides great opportunities for participants to exchange new ideas and experience as well as to forge research and business relations with global partners for future collaborations.

The articles in this book were accepted after a rigorous review process. All accepted papers are categorized based on the following themes and areas of research:

- Green Environment and Smart Water Resource Management Systems
- Advanced Coastal and Offshore Engineering
- Resilient Structures and Smart Materials
- Advanced Construction and Building Information Modelling
- Smart and Sustainable Infrastructure

We would like to express our gratitude to the Technical Programme Committee and Advisory Committee who undertook the biggest responsibility in the paper reviewing process. We are also grateful to the additional reviewers who helped the authors deliver better papers by providing them with constructive comments. We hope that this process contributed to a consistently good level of the papers that are included in the book.

Bashar Sami Mohammed Nasir Shafiq Shamsul Rahman M. Kutty Hisham Mohamad Abdul-Lateef Balogun

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