

## Preface

It is with great pleasure that we present the proceedings of the International Colloquium on Mechanical and Civil Engineering (ICMCE 2025), held on April 22–23, 2025, at the Faculty of Sciences and Techniques of Fez (FST-Fez), under the auspices of Sidi Mohamed Ben Abdellah University (USMBA), Morocco.

Organized in partnership with the Laboratory of Research in Engineering Sciences (LaRSI), this scientific event brought together a wide range of researchers, academics, doctoral candidates, and industrial professionals from Morocco and abroad to exchange ideas on recent advances and emerging challenges in the fields of mechanical, civil, and industrial engineering.

The main objective of ICMCE 2025 was to promote scientific and technical exchange between the academic community and socio-economic actors, while fostering the dissemination of innovative and sustainable technological solutions that address the challenges of industrial and environmental development.

More than 120 scientific papers were submitted for this edition. Following a rigorous peer-review process, 43 contributions were selected for oral or poster presentation, and 33 high-quality manuscripts were accepted for publication in these proceedings.

The published papers cover a wide range of topics, including:

- Seismic behavior of structures, materials durability, and the design of resilient infrastructure;
- Advanced approaches in modeling and simulation for mechanical and civil engineering applications;
- Energy efficiency, renewable energy integration, and environmental management;
- Digital innovation, artificial intelligence, and Industry 4.0 applications in engineering systems.

The editorial committee would like to express its sincere gratitude to all authors, reviewers, and members of the scientific committee for their dedication and invaluable contribution to the scientific quality of this volume. We also extend our heartfelt thanks to Sidi Mohamed Ben Abdellah University, the Faculty of Sciences and Techniques of Fez, and the National Center for Scientific and Technical Research (CNRST) for their institutional and financial support.

We hope that these proceedings will contribute to the dissemination of innovative research, the advancement of applied engineering, and the establishment of new scientific collaborations in support of technological progress and sustainable development.

On behalf of the Organizing and Scientific Committees,

we wish all readers an inspiring and insightful exploration of the contributions presented in this volume.