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*The Industry of Tomorrow: Merging Materials Science and Engineering
for a Resilient Environment*

**RESEARCH REVIEW of
Sciences and Technologies**



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Special Issue : The Industry of Tomorrow: Merging Materials Science and Engineering for a Resilient Environment

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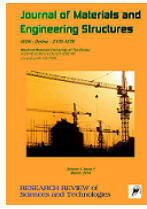
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Journal of Materials and Engineering Structures

Editorial Letter of a Special Issue

The Industry of Tomorrow: Merging Materials Science and Engineering for a Resilient Environment.

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1 Introduction and motivation

This issue (N° 2, Volume 13, June 2026) of Journal of Materials and Engineering Structures (JMES) is dedicated to a special issue whose approach is intended to be "Visionary & Strategic". It revolves around the following topic:

« The Industry of Tomorrow: Merging Materials Science and Engineering for a Resilient Environment »

This Special Issue of JMES was planned to provide an international forum for the presentation and discussion of original and latest findings and developments in design, analysis and challenges in the field of material sciences, engineering and Sustainable Environment and resilience.

It includes manuscripts of some selected papers presented at three international prestigious events that are:

- 7th International conference on Manufacturing, Material science and Engineering (ICMMSE 2025), held during 22-23rd August 2025 in Hyderabad Telangana in India.
- 1st International Seminar in Civil Engineering: from sustainability to resilience (SIGC'25), held during 28-29th October 2025 at Ain Témouchent in Algeria.
- International Conference on Engineering Sciences for a Sustainable Environment (ICESSE'25), 29-30th October 2025 at Tizi Ouzou in Algeria.

JMES is proud to serve as a hub for interdisciplinary ideas and exchanges. This special issue aims to promote innovative approaches to addressing global environmental challenges, offering a platform for reflection and discussion toward sustainable, environmentally respect full development.

This special issue is the result of a rigorous selection made by the scientific committees of these meetings as well as the editorial team of the JMES journal, on the presented papers.

2 Topics of the special issue

A wide collection of original research papers covering several topics of primary interest characterizes this Special Issue volume. In particular, the attention of these international research efforts goes to Manufacturing, Material science, Engineering science, Sustainable Environment and resilience.

The seventh international conference on manufacturing, material science and engineering 2025 (ICMMSE 2025) aims to bring together leading academicians, scientists, industry personnel, researchers and research scholars to exchange and

share their experiences and research results about all aspects of manufacturing, material science, and engineering. It also provides the premier interdisciplinary forum for scientists, engineers, and practitioners to present their latest research results, ideas, developments, and applications in the area of manufacturing, material science, and engineering. It is important to notice that ICMMSSE 2025 plays a significant role in inspiring breakthrough innovations from fundamentals to technological challenges and applications that are shaping the era of industry 4.0.

The First International Seminar in Civil Engineering: from sustainability to resilience (SIGC'25). This international seminar is a valuable forum for exchange, bringing together academic researchers, industry experts, and equipment manufacturers to share their knowledge, experiences, and information on recent advances in civil engineering science and technology. The seminar's themes aim to advance knowledge and innovation in civil engineering. They focus on the development of environmentally friendly and sustainable materials, the integration of digital technologies such as AI (Artificial Intelligence), BIM (Building Information Modelling), and automation to improve construction efficiency, as well as sustainable trends in geotechnics, such as ecological soil stabilization, etc.

The International Conference on Engineering Sciences for a Sustainable Environment (ICESSE'25), was a significant event bringing together researchers, students, and professionals in engineering and environmental sciences. This conference aims to explore scientific and technological advancements in engineering and environmental sustainability. It seeks to expand its scientific activities by strengthening partnerships between academic stakeholders and key players in the socio-economic sector.

3 Presentation of the special issue

The submitted manuscripts to JMES are extended versions of papers presented in the three conferences mentioned above. Authors submitted a longer version of their research to JMES in accordance with JMES's guidelines. Following feedback from the JMES editorial team, 16 of the 26 papers received were selected for publication in this special issue.

Two papers, presented in ICMMSSE 2025 are selected; deal with topics related to the field of industry, one focusing on the Influence of Silicon Nitride on the Electrochemical Corrosion Features of Aluminium Composite and the other on the Thermal Characterization of Stoichiometrically Varied Epoxy Networks.

Two papers presented at SIGC'25 are also selected; the first addresses a topic related to engineering science, with highly applied research, as it contributes to a more accurate understanding of reinforcement buckling mechanisms and provides guidance for the seismic design of ductile RC bridge piers. The second paper focuses on a topic related to materials science, focusing on the valorisation of calcined silt, obtained through the thermal treatment of dam sediments, as a mineral additive in cement-based mortars.

Twelve papers presented in ICESSE'25 are selected, they deal with several topics.

Two papers deal with the mechanical aspect of the structures. The first is a case study of Dolphin Structures Health Monitoring, while the second deals with the free vibration behaviour of nanocomposite plates in a thermal environment.

Five papers deal with the science of new eco-materials. Two of these papers discuss the production of eco-friendly self-compacting concrete with recycled concrete aggregate. Two other papers deal with the reinforcement of structures using composite textile fibre fabrics. The fourth paper deals with the response in functionally graded material sandwich beams.

One paper deal with soil behaviour, particularly the deformability of the rock mass during the excavation of an underground structure.

Three papers address topics related to the energy industry, in connection with applications in wind turbines and photovoltaics.

4 Acknowledgements

Readers of JMES will have the opportunity to discover technological advances and concrete projects aimed at improving the fields of Civil Engineering, Mechanical Engineering, Hydraulic Engineering, Energy Efficiency, and Environmental Engineering on local, national, and international scales. We believe that all the papers published in this special issue will be an opportunity for their authors to share recent works on Sustainability in Civil Engineering field.

Sincerely thanks are sent to all authors for their heartfelt contributions to this special issue.