



# Book of Abstracts

28<sup>th</sup> JULY 2023

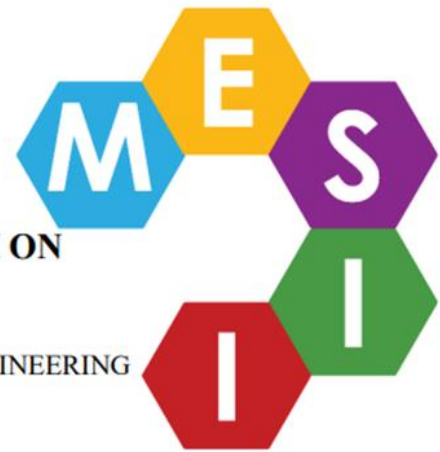
# Materials Engineering Symposium on Innovations for Industry

*Sustainable Future Through Knowledge  
and Innovations in Materials Science and Engineering*

2023



**MATERIALS ENGINEERING SYMPOSIUM ON  
INNOVATIONS FOR INDUSTRY 2023**  
SUSTAINABLE FUTURE THROUGH KNOWLEDGE  
AND INNOVATIONS IN MATERIALS SCIENCE AND ENGINEERING



Materials Engineering Symposium on Innovations for Industry (MESII-2023) is being organized for the 6<sup>th</sup> time by the Department of Materials Science and Engineering of University of Moratuwa. The main objective of this event is to facilitate the industry to recognize and gain awareness on the research activities carried out by the final year undergraduates of the Department as well as provide an opportunity to get a comprehensive understanding about the activities and facilities of the Department.

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## Message from the Vice-Chancellor



It is with great pleasure that I extend my heartfelt congratulations to the Department of Materials Science and Engineering at the University of Moratuwa, for successfully organizing their annual undergraduate research symposium, Materials Engineering Symposium on Innovations for Industry (MESII) -2023 for the sixth time.

This Symposium represents the pinnacle of academic achievement and serves as a testament to the exceptional caliber of our students and the unwavering commitment of our faculty members. As the Vice-Chancellor, I am deeply inspired by the dedication and scholarly achievements of our final-year undergraduates, whose research findings and contributions continue to shape the field of Materials Science and Engineering.

At the University of Moratuwa, we have always been steadfast in our pursuit of excellence in education, research, and community engagement. The Department of Materials Science and Engineering exemplifies this commitment with its forward-thinking approach, dedication to knowledge creation, and real-world impact.

University-industry collaborations are vital for the professional development of undergraduate students, enhancing their skill levels and readiness for the job market. We highly value industry contributions, ideas, and support as they provide real-world insights, enrich the educational experience, and help nurture future leaders. The industry's engagement with the academic community has been invaluable in bridging the gap between theory and practice, ensuring that our graduates are well-prepared to tackle the challenges in the modern world.

I wish all the best to the Department of Materials Science and Engineering on this significant milestone. Its dedication to excellence serves as an example for the entire University, motivating all to strive for greatness and contribute to a better future for our world.

Prof. N. D. Gunawardena  
Vice-Chancellor



## Message from the Dean



I would like to extend my warmest congratulations to the Department of Materials Science and Engineering at the University of Moratuwa, Sri Lanka, on the 6<sup>th</sup> Materials Engineering Symposium for Innovations in Industry (MESII)-2023, scheduled to take place on the 28<sup>th</sup> of July 2023.

This Symposium represents a remarkable milestone in the academic journey of our final-year undergraduates, as they come together to present their groundbreaking research findings to the industry. It is a moment of immense pride for all of us to witness the fruition of their hard work, dedication, and unwavering spirit of innovation throughout their years of study.

Materials Science and Engineering stand at the vanguard of technological advancements and hold a pivotal role in shaping the future of our world. The research carried out by our students embodies the very essence of creativity, critical thinking, and problem-solving, which are fundamental traits of exceptional engineers.

I would like to congratulate our students on their thirst for knowledge and tireless pursuit of excellence. Their passion for exploration and the commitment to greatness will undoubtedly lead to revolutionary contributions to both society and industry, and for that, I am incredibly proud of all of them.

Also, I would like to appreciate the dedicated staff members who have nurtured and guided these brilliant minds throughout their academic journey. Your continued support and mentorship have been instrumental in molding these young individuals into the exceptional engineers they are today. Also, I wish all the industry members a fruitful and enriching symposium filled with knowledge, collaboration, and innovative insights.

Once again, my sincerest congratulations to the Department of Materials Science and Engineering for organizing this remarkable event. May this event be a testament to the potential and brilliance of our students and the dedication of our faculty.

Wishing you all a successful and inspiring Symposium.

Prof. K.T.M.U. Hemapala  
Dean, Faculty of Engineering  
University of Moratuwa, Sri Lanka

## Message from the Head of the Department



Materials Engineering Symposium on Innovations for Industry (MESII) is an important event in the annual calendar of the Department of Materials Science and Engineering which is organized in collaboration with the Society of Materials Engineering Students. MESII is celebrating its 6<sup>th</sup> birthday this year. It should be highlighted that this year's MESII is something special since it is coupled with EXMO 2023.

This symposium was initiated in 2017 by one of academics Prof. Mrs. Asha Gallenage with a two-fold objective initially, showcasing the research capabilities of our undergraduates and enhancing industry-department interactions. However, from the year 2019, the scope of this symposium was expanded towards creating awareness among the students of physical science stream of GCE (A/L) about the field of Materials Science and Engineering in general and the research activities of the department in specific with a focus on innovations. This year too, the scope remains the same.

Dr. (Mrs.) Hansinee Sitinamaluwa, serves as the principal organizer and program chair of MESII for this year for the first time. I take this opportunity to congratulate her for organizing and coordinating an important event like this. I also wish to express my sincere gratitude to all the academic and non-academic staff of the department who supported and helped in successfully organizing this symposium. I am also very thankful for all the students who dedicated their valuable time to be instrumental in this event as the members of the Society of Materials Engineering Students.

Finally, I wish to congratulate all the young researchers who will be presenting their papers and posters today.

Mr. V. Sivahar

Head/Department of Materials Science and Engineering

Faculty of Engineering

University of Moratuwa



## Message from symposium chair



As the Symposium Chair, I am filled with immense pride and gratitude as we come together at the 6<sup>th</sup> Materials Engineering Symposium for Innovation in Industry (MESII) - 2023. I am grateful to the Department of Materials Science and Engineering for placing their trust in me and bestowing upon me the responsibility of organizing this main annual event of our calendar. This opportunity has been both an honor and a privilege, and I am humbled by the support and encouragement I have received throughout this journey.

This Symposium serves as a testament to the hard work and dedication of our students, who have not only showcased their research findings but have also proven their ability to excel in event management and coordination. Their commitment to delivering a seamless and enriching experience for all participants is remarkable, and I applaud them for their outstanding efforts.

It is essential to acknowledge the profound impact this Symposium has on shaping the skills of our students and preparing them for the challenges of the industry. Through engaging in academic discussions, presenting their research, and networking with professionals, our students gain invaluable exposure that helps shape them into industry-ready graduates.

I would like to extend my sincerest gratitude to our industry partners and sponsors for your generous support. Your collaboration with our academic community has been instrumental in nurturing these young engineers, ensuring that they are well-prepared to make outstanding and meaningful contributions to society.

I wish everyone a great time at MESII-2023. Together, let us continue to build a brighter future through knowledge-sharing, innovation, and collaboration.

Dr. (Mrs.) Hansinee Sitinamaluwa  
Symposium Chair - MESII-2023  
Department of Materials Science and Engineering  
University of Moratuwa