

NCMDAO-2025

03-05, December 2025

MSRUAS, Bengaluru



**8th National Conference
on
Multidisciplinary Design, Analysis, and Optimization
(NCMDAO - 2025)**

www.ncmdao.org



Venue:

*Ramaiah Technology Campus
M. S. Ramaiah University of Applied Sciences
Peenya Industrial Area, Bengaluru - 560058*

Registration:

<https://forms.gle/iZhF4jarUnJWMV78>



NCMDAO - 2025

As engineering systems grow in complexity, the integration of multiple physics and disciplines has become not only possible - but essential. With deeper understanding of system-level physics and the rise of powerful computational technologies, Multidisciplinary Design, Analysis, and Optimization (MDAO) empowers researchers and designers to create solutions that are efficient, accurate, reliable, and robust. The National Conference on Multidisciplinary Design, Analysis and Optimization serves as a platform for academia and industry to converge, exchange insights, and advance the frontiers of multidisciplinary optimization.

The 8th National Conference on Multidisciplinary Design, Analysis and Optimization follows seven national conferences and one international conference on the MDAO theme held since 2018. This conference is jointly organized by M. S. Ramaiah University of Applied Sciences (MSRUAS), Indian Institute of Science (IISc), CSIR-National Aerospace Laboratories (NAL) and Design Division of The Aeronautical Society of India (AeSI). This conference brings together the MDAO community from academia, industry, and government laboratories to provide a platform for masterclass lectures, invited talks, paper and poster presentations, and panel discussions on contemporary topics.

M S Ramaiah University of Applied Sciences

M.S. Ramaiah University of Applied Sciences (MSRUAS), a premier state private university in Bengaluru, Karnataka, was established under the Karnataka University Act 2013 and is accredited with NAAC A+ in 2024. Recognized by the UGC and Government of Karnataka, the university's programs are approved by statutory bodies such as AICTE, NMC, PCI, and BCI. The university integrates academics, research, and innovation through its outcome-based curriculum and world-class infrastructure.

Indian Institute of Science

The Indian Institute of Science (IISc), founded in 1909 through the collaboration of Jamsetji Tata, the Mysore royal family, and the Government of India, is the country's premier institute for advanced research and education. Over the past century, it has balanced fundamental research with industrial and societal applications, attracting top faculty and students from around the world. Looking ahead, IISc aims to rank among the world's leading institutions by advancing interdisciplinary research, nurturing start-ups, and addressing global challenges such as climate change, healthcare, and renewable energy.

CSIR - National Aerospace Laboratories

CSIR-National Aerospace Laboratories (CSIR-NAL), established in 1959, is the only civilian government aerospace R&D laboratory in India. It focuses on advanced aerospace disciplines, boasting major facilities such as a 1.2 m trisonic wind tunnel and a full-scale fatigue test facility for fighter aircraft. Over the decades, it has made vital contributions to India's space and aerospace programmes, including wind-tunnel testing for vehicles like the HAL Tejas as well as acoustic qualification for satellites and launch vehicles.

The Aeronautical Society of India - Design Division

The AeSI Design Division was established in 2017 under the aegis of Aeronautical Society of India with a dedicated mission to advance aircraft design and related technologies in India. It is headquartered in Bangalore and actively engages engineers, scientists and students through workshops, seminars, design competitions and round-table technical discussions. The division also organizes the annual student competition National Aerospace Conceptual Design Competition (NACDeC) to promote systems-level and design thinking in the next generation of aerospace professionals.

PROGRAMME

DAY 01 3RD DECEMBER 2025

08:30 to 09:30	Registration
09:30 to 09:50	Inauguration
09:50 to 10:30	Keynote Address <i>Multi-Objective Aircraft Optimization</i> <i>Dr. Abhay Pashilkar, Director CSIR - NAL</i>
10:30 to 11:00	Conclusion of Inaugural Session
11:00 to 11:30	Tea Break
11:30 to 13:00	Masterclass 1 <i>Aerodynamic Shape Optimization using Adjoint based Methods</i> <i>Prof. Sanjay Mittal, IIT - Kanpur</i>
13:00 to 14:00	Lunch Break
14:00 to 15:30	Technical Session 1
15:30 to 16:00	Tea Break
16:00 to 18:30	Transition to Online Session
18:30 to 20:00	Masterclass 2 <i>Multi-Anisotropic-Material Topology Optimization</i> <i>Dr. Emily D. Sanders, Georgia Tech</i>

DAY 02 4TH DECEMBER 2025

09:30 to 10:15	Invited Talk 1 <i>Topology Optimization of Compliant Mechanisms for Complex Objective</i> <i>Dr. B. V. S. Nagendra Reddy, NIT - Kurukshetra</i>
10:15 to 11:00	Invited Talk 2 <i>Topology Optimization of Robotic-Links</i> <i>Dr. Arshad Javed, BITS - Pilani, Hyderabad Campus</i>
11:00 to 11:30	Tea Break
11:30 to 13:00	Technical Session 2
13:00 to 14:00	Lunch Break
14:00 to 14:45	Invited Talk 3 <i>Homogenization of Origami Metamaterials with Exotic Geometric Mechanics</i> <i>Dr. Phanisri Pradeep Pratapa, IIT - Madras</i>
14:45 to 15:30	Invited Talk 4 <i>Human-Centric Wearable Robotics: Integrating Design, Sensing, and Optimization for Enhanced Human Performance</i> <i>Dr. Vineet Vashista, IIT - Gandhinagar</i>
15:30 to 16:00	Tea Break
16:00 to 17:00	MDAO Panel Discussion

09:30 to 10:30	Masterclass 3 <i>Data-driven Analysis / Modelling of Turbulent Flows</i> <i>Dr. Rishita Das, IISc</i>
10:30 to 11:15	Invited Talk 5 <i>Interactive Multi-Objective Optimization Process to Solve Real World Problems</i> <i>Dr. Shamik Chaudhuri, Independent Consultant</i>
11:15 to 11:45	Tea Break
11:45 to 13:15	Technical Session 3
13:15 to 14:15	Lunch Break
14:15 to 16:00	MDAO Breakout and Summary Sessions
16:00 to 16:30	Valedictory
16:30 to 17:00	High Tea

Keynote Address



Dr. Abhay A. Pashilkar
Director, CSIR - NAL

Masterclass Speakers



Prof. Sanjay Mittal
IIT - Kanpur



Dr. Emily D. Sanders
Georgia Tech



Dr. Rishita Das
IISc

Invited Speakers



Dr. P. Pradeep Pratapa
IIT - Madras



Dr. Arshad Javed
BITS - Pilani



Dr. Shamik Chaudhuri
Independent Consultant



Dr. B. V. S. Nagendra Reddy
NIT - Kurukshetra



Dr. Vineet Vashista
IIT - Gandhinagar

COMMITTEES

PATRONS

- Dr. M. R. Jayaram, Chancellor, Ramaiah University of Applied Sciences, Bengaluru
- Dr. Kota Harinarayana, Design Division, The Aeronautical Society of India
- Prof. Kuldeep Kumar Raina, Vice - Chancellor, Ramaiah University of Applied Sciences, Bengaluru

CONFERENCE CHAIR

- Prof. M. Sivapragasam, Ramaiah University of Applied Sciences, Bengaluru
- Prof. G. K. Ananthasuresh, Indian Institute of Science, Bengaluru

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- Prof. Nayana N. Patil, Associate Dean - RTC, Ramaiah University of Applied Sciences, Bengaluru
- Dr. Jayahar S., Head, Dept. of Aerospace and Automotive Engineering, RUAS, Bengaluru

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- Dr. Kota Harinarayana, Design Division, The Aeronautical Society of India
- Prof. K. Sudhakar, Retired Professor, Indian Institute of Technology - Bombay
- Prof. G. K. Ananthasuresh, Indian Institute of Science, Bengaluru
- Prof. Palaniappan Ramu, Indian Institute of Technology - Madras
- Dr. Ravi Salagame, Autobotik - Singapore
- Dr. Pankaj Priyadarshi, VSSC, ISRO, Thiruvanthapuram
- Mr. Vinay Ramanath, Siemens, Bengaluru
- Dr. Indira Narayanaswamy, Formerly ADA & MSRUAS
- Prof. Deepak Sharma, Indian Institute of Technology, Guwahati
- Prof. Anupam Saxena, Indian Institute of Technology - Kanpur
- Prof. Dhish Saxena, Indian Institute of Technology - Roorkee

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- Dr. Phanisri Pradeep Pratapa, Indian Institute of Technology - Madras
- Dr. Vineet Vashista, Indian Institute of Technology - Gandhinagar

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- Ms. Valliammai Somasundaram, Aeronautical Development Agency, Bangalore
- Mr. Kandaswamy S., Research Centre Imarat, Hyderabad

RUAS ORGANIZING COMMITTEE

Department of Aerospace and Automotive Engineering

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- Dr. A. T. Sriram
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- Mr. Shaik Bepari Mohammed Khaja Moinuddin
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- Mr. M. Ananda Murugan
- Ms. Priyanka D. S.
- Mr. Syed Mohsin
- Mr. Vishnu Prasad A.

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Registration Fee:

Delegates: INR 7,500 (govt. and academia)

Delegates: INR 12,000 (industry)

Students and postdocs: INR 2,500

<https://forms.gle/iZhF4jarUnJWMV78>

