



INTERNATIONAL CONFERENCE ON  
**ULTRASONICS AND MATERIALS SCIENCE  
FOR ADVANCED TECHNOLOGY**  
(ICUMSAT 2025)



PRE-CONFERENCE WORKSHOP ON  
**RECENT BREAKTHROUGHS IN  
ULTRASONICS FOR MEDICINE**

**21<sup>st</sup> to 23<sup>rd</sup> January 2026**



Organized by

**Easwari Engineering College**  
Ramapuram, Chennai – 600 089  
Tamil Nadu, India



**SRM TRP Engineering College**  
Tiruchirappalli - 621 105  
Tamil Nadu, India



In association With  
**Ultrasonics Society of India (USI)**  
New Delhi

## About the College

**Easwari Engineering College (EEC)**, an autonomous institution established in 1996–97 under the aegis of SRM Institute of Medical and Technical Research, is a premier institution of the SRM Group of Educational Institutions. It was founded by **Dr. T. R. Paarivendhar** to promote the cause of quality education and is now led by Chairman **Dr. R. Shivakumar** and Co-Chairman **Er. S. Niranjan**. The college has been approved by AICTE and affiliated to Anna University since 2002. The college offers 15 undergraduate programs including B.E. and B.Tech. in disciplines such as Civil, Mechanical, Electrical & Electronics, Electronics & Communication, Biomedical, Biotechnology, Computer Science, Information Technology, and related fields. Over the past 28 years, the institution has evolved into a top-ranked NIRF institution & offers 7 post graduate programs including M.E., MBA, and MCA. Accredited by NBA and NAAC, EEC also fosters strong industry interaction with reputed national and international organizations, ensuring academic excellence, research orientation, and professional relevance.

## About the Department

The Department of Physics was started in December 1996 catering to the needs of Engineering Departments and has grown in tune with the demands of the Institution and improved its strength. Our department boasts 12 highly qualified doctorate faculty members who have filed multiple national and international patents and secured research funding of ₹ 2.35 Crore over the past decade. The Department of Physics has established a distinguished Center of Excellence dedicated to Advancing Research in Bioactive Glass. The faculty members have published number of papers in reputed national and International Journals and presented more number of papers in National / International Conferences.

## About the Ultrasonics Society of India

The Ultrasonics Society of India (USI) was founded in 1974 at the National Physical Laboratory (NPL) in New Delhi. For more than 50 years, it has been actively advancing research and development in the field of ultrasonics and related fields. It has arranged a number of national and international symposiums around the nation. The Society is in its 45th year of publishing with its regular Journal of Pure and Applied Ultrasonics. Being a member of the Society has helped a great deal of scientists, academics, and students. INSPEC abstracting Services UK is abstracting the journal and i-Scholar is collaborating with them. You may find further details on the Society website.

([www.ultrasonicsindia.org](http://www.ultrasonicsindia.org)).



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**Dr. K. Sakthipandi**, Physics, SRM TRP EC

### TREASURER

**Dr. R. ArunKumar**, Physics, EEC

**Dr. Ammu Vijay**, EEC

## ABOUT PRE CONFERENCE WORKSHOP

### Opportunities and Challenges in Ultrasonic Testing in Industries

Ultrasonic Testing (UT) is a powerful Non-Destructive Evaluation (NDE) tool that ensures safety, quality, and performance without damaging materials. This workshop brings together industry experts and academia to explore the latest opportunities and challenges in UT applications.

#### Opportunities

- Enhanced quality assurance in welding & fabrication
- Expanding biomedical applications with precision UT
- Digital UT+AI/Robotics for predictive maintenance
- Rising demand for skilled UT professionals

#### Challenges

- Complex geometry inspections
- High cost of automation & equipment
- Shortage of trained NDE experts
- Need for standardization across industries

#### Why Attend?

- Learn from real-world case studies
- Explore future trends in UT
- Discover how UT is shaping industrial & biomedical sectors in Chennai
- Network with experts from academia & industry.

## ABOUT THE CONFERENCE

ICUMSAT-2025 will provide a global platform for ultrasonics researchers, materials scientists, entrepreneurs, and young scientists to share knowledge, innovations, and strategies for future advancements. From ancient contributions to modern breakthroughs in healthcare, imaging, energy, and manufacturing, ultrasonics and materials science continue to shape the progress of science and technology.

This conference emphasizes the paradigm shift of NDE 5.0 – Ultrasonic Testing, showcasing the integration of traditional ultrasonic methods with AI, ML, IIoT, robotics, AR, and cloud analytics - transforming inspection into a smart, predictive ecosystem.

### Highlights of NDE 5.0 – Ultrasonic Testing

- Automated Phased Array Systems, Full Matrix Capture (FMC), and the Total Focusing Method (TFM) for enhanced imaging and precise defect characterization.
- Robotic manipulators and crawler systems for repeatable, high-precision inspections in hazardous or inaccessible environments - improving safety and minimizing human error.
- AI-enabled real-time analytics that process inspection data instantly on secure cloud platforms, enabling defect recognition, sizing, and predictive maintenance based on asset performance history.
- Digital twins to simulate inspection scenarios and forecast component lifespans, ensuring proactive decision-making and improved operational reliability.

## CONFERENCE THEMES

- AI-driven defect detection and interpretation.
- Predictive analytics for proactive maintenance.
- Traceable digital records for compliance.
- AI & Machine Learning in signal analysis.
- Remote and autonomous inspection systems.
- Nonlinear ultrasonics for material characterization.
- Smart sensors and wireless monitoring.
- Ultrasonics in NDT/NDE.
- Nanoscience and nanotechnology applications.
- Biomedical and healthcare diagnostics.
- Additive manufacturing and materials processing.
- Welding, cleaning, and sonochemistry.
- Aerospace, automotive, and civil infrastructure applications.

## CALL FOR ABSTRACTS AND FULL LENGTH PAPERS

- Participants are invited to submit abstracts on their unpublished research work (maximum 300 words) that should be in the given abstract format in this QR. All the procedures mentioned in the document file.
- All the accepted papers will be published in **Scopus/SCI** Indexed Journals after the peer review process. (List of Journals will be updated soon)
- Best Oral & Poster will be awarded for two participants in each category.

## IMPORTANT DATES

Last Date for Abstract	:	<b>31.10.2025</b>
Notification of Acceptance	:	<b>15.11.2025</b>
Last Date for Full Length Paper	:	<b>31.12.2025</b>
Last Date for Registration	:	<b>12.12.2025</b>



# REGISTRATION

Category	Indian	Foreign
Non USI Members	₹ 6,000/-	US\$ 300
USI Members	₹ 5,000/-	US\$ 200
Scholars & Students	₹ 3,000/-	US\$ 200
Industrialists	₹ 10,000/-	
Accompanying Person	₹ 2,000/-	US\$ 200

**Registration Link:**

## BANK DETAILS

Account Name: **Easwari Engineering College**  
Bank: **City Union Bank**  
Account no: **500101013507081**  
IFSC Code: **CIUB0000517**  
Branch: **Ramapuram**

*Registration fee includes conference kit, book of proceedings abstracts with ISBN, Snacks & Refreshments, lunch and local conveyance*

## For further details

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