

About the Institute: National Institute of Technology, Tiruchirappalli (NIT-T), is one of the premier Institutions of India and is well known for its high standards in teaching and research. It offers 10 Undergraduate and 31 Postgraduate programs in the disciplines of Engineering, Science, Architecture, and Management. NIT-T retained its 1st position amongst its 31 counterparts in the country and 9th among Engineering Institutions in the National Institutional Ranking Framework (NIRF) 2024 Ranking.

About the Department: The Department offers B.Tech. (Production Engineering), M.Tech. (Manufacturing Technology), M.Tech (Industrial Engineering and Management), M.S., and Ph.D. programs. Cutting-edge laboratories are available for Machining, Forming, Welding, Casting, Robotics, CIM, CNC, Mechatronics, Modelling and Simulation, Ergonomics, Tribology, Composite Materials, and Operations Management. The Production Engineering faculty guided over 150 Ph.D. students. The Department provides Engineering consulting in the emerging fields of Manufacturing and Industrial Engineering.

About the ANRF-SERB sponsorship:

The Science and Engineering Research Board (SERB) recently renamed as Anusandhan National Research Foundation is a statutory body established through an Act of Parliament. Supporting basic research in emerging areas of Science & Engineering is the primary and distinctive mandate of the Board. The Board structure, with both financial and administrative powers vested in the Board, would enable quicker decisions on research issues, greatly improving thereby our responsiveness to the genuine needs of the research scientists and the S&T system. Recognising that all research support has at its base the development of quality, well-trained researchers; initiate and strengthen programmes of identifying research potential, mentoring, training and hands-on workshops, on a broad-based national scale.



**6-Days Hybrid Workshop Sponsored by
ANRF-SERB on**

**Manufacturing and Characterization of
Advanced Materials for Health Care and
Défense Applications**

November 18th – 23rd 2024

Organized by



**DEPARTMENT OF PRODUCTION ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY
TIRUCHIRAPPALLI – 620015
TAMILNADU, INDIA**

About the Workshop: The Six Days ANRF-SERB Sponsored workshop on ‘Manufacturing and Characterization of Advanced Materials for Health Care and Défense Applications’ is scheduled to be held from 18th – 23rd November 2024. The materials used in health care require some unique properties and components made out of these materials are in complex shapes and sizes. For defense applications, machine-to-difficult composite materials and alloys are widely used. Therefore, this workshop focuses on the manufacturing processes and the latest characterization techniques required for these materials used for both applications. This workshop will provide a detailed understanding of advances in materials such as biomaterials, shape memory alloys, smart materials, multifunctional grade materials, etc., and the recent trends in the manufacturing of real-life products out of these materials. The processes required for the fabrication of products such as the 3D and 4D printing techniques, micro joining and machining processes through laser and electron beam sources, micro-electric discharge machining, micro-electro chemical machining, etc.

Main Topics to be Covered

- Introduction to Advanced Materials
- Additive Manufacturing Capabilities for Advanced Materials
- Lasers for hard and soft materials
- Advances in Metal Forming – Nano forming
- Advances in Machining – Nano
- Processing and Characterization of Composites
- 3D and 4D printing of advanced materials for health care application
- Focused ion beam sectioning for TEM sample preparation of advanced materials
- Surface Engineering – Modifications of implant surfaces
- Smart Materials used in the human body and space application
- Advanced materials for defense and aerospace application: State of art
- Development in Coatings in Defense and Health care
- Role of High-Temperature Materials in Defense

Resource Persons: Eminent people from reputed institutions (IITs, NITs, and Central Universities), Professionals from R&D labs, and Industry Experts

Target Group: Faculties/Scholars/Students from the Education Institutions/Colleges and Industry persons. A maximum of 50 participants are allowed.

Registration: Fixed Participation fee Rs. 1000/-

Pay the registration fee using the following SBI Collect link -

<https://www.onlinesbi.sbi/sbicollect/>

Steps to be followed: [Educational Institutions -> Filter by state:

“Tamilnadu” -> Search “Conference and Workshop NIT Trichy” ->

Payment Category “Production 2024 -Manufacturing Workshop”

After payment, submit the following Google form to complete the registration

<https://forms.gle/b1CezUcLFFfVMx7d8>

Last Date for Registration: 17th November 2024

Mode of Workshop: First 3 Days Online through Zoom/Google Meet/Microsoft Team platforms and remaining 3 Days offline on NITT Campus (Accommodation will be provided on a sharing and chargeable basis).

Organizing Committee:

Chief Patron: Dr. G. Aghila, Director, NIT Trichy

Patron: Dr. V. Sankaranarayanan, Dean (R and C), NIT Trichy

Co-Patron: Dr. C. Sathiya Narayana, Head/Production Engg., NIT Trichy



Coordinator: Dr. P. Sathiya,
Professor, Production Engg., NIT
Trichy



Co-Coordinator: Dr. Deepak
Deelip Patil, Assistant Professor,
Production Engg., NIT Trichy

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