



ENGINEERING STAFF COLLEGE OF INDIA (ESCI)

(An ISO 9001:2015 Certified, AICTE & CEA Recognized Institution)

Autonomous Organ of the Institution of Engineers (India)

Old Bombay Road, Gachibowli, Hyderabad – 500 032. Telangana, India



Design Prototyping Centre & Mechanical Division (DPC –MD)

Continuing Professional Development Programme on



Mechanical, Chemical Testing and Metallurgical Characterization of Metallic materials - Concepts, Equipment, Calibration, Data Analysis

04 – 07 August 2026

INTRODUCTION

Material testing and metallurgical characterization play a vital role in ensuring the quality, reliability, and performance of engineering materials and components. Accurate evaluation of mechanical properties, chemical composition, and microstructural characteristics is essential for verifying compliance with specifications and service requirements.

This training programme, "Mechanical, Chemical Testing and Metallurgical Characterization of Metallic Materials – Concepts, Equipment, Calibration, and Data Analysis," provides participants with an understanding of testing principles, equipment, calibration practices, relevant standards, and data interpretation techniques. The programme aims to equip engineers, scientists, quality professionals, and researchers with the knowledge required to effectively assess metallic materials and support informed engineering decisions.

OBJECTIVES

The objectives of the programme are:

- To impart knowledge on the principles and procedures involved in chemical, mechanical, and metallographic testing of materials.
- To create awareness about testing equipment, sampling techniques, and standardized test methods.
- To introduce the concept of laboratory-scale heat treatments and their significance in material evaluation.
- To familiarize participants with various industry specifications and standards applicable to material testing processes.
- To highlight the importance of material testing through relevant case studies and real-world applications.

COURSE CONTENT

The following topics will be covered during the training programme:

- Fundamentals, Equipment, Types of testing methods for Chemical, Mechanical and Metallography with special emphasis to strategic tests like fatigue, fracture and creep
- Sampling extraction methods, test procedures, Laboratory heat treatment of samples
- Test results interpretation, data analysis, validation and documentation (COC)
- Various National and International standards like ASTM, AMS, BS, IS etc.
- Important control parameters in testing of materials
- Calibration systems, methods
- Quality Management Systems-ISO,AS9100
- Accreditation systems NABL, NADCAP - Implementation and auditing
- Failure analysis
- Case studies

Centre for Promotion of Professional Excellence

METHODOLOGY

Methodology of the programme includes Chalk & Talk sessions /lectures/group discussions/case studies/debates with audio-visual aid, benched marked video shows etc. All the sessions will be interactive demanding active participation from all the member participants.

TARGET PARTICIPANTS

Professionals from Governments, Private and Public Sector Undertakings of aerospace manufacturing (from Design, Development, Production, Testing, inspection and Service), Scientists working in Research Laboratories & Faculties of various Colleges & Universities, Startups into New product development, Repair and overhaul departments etc shall find this programme useful.

CERTIFICATION

A Certificate of participation will be awarded to all the participants after the successful completion of the training programme.

COURSE DIRECTOR

Dr. N V S S Sagar

Faculty

Design Prototyping Center and Mechanical Division

Engineering Staff College of India

Gachibowli, Hyderabad.

Email: dpc@escihyd.org

Contact No.: 040-66304184/86/ 9052291738

PROGRAMME DATES: 04 – 07 August 2026

COURSE FEE: Rs. 24,000/- (Rupees Twenty Four Thousands Only) per Participant + GST@18% Extra.

GST is Nil for all the Government Organizations (if they are exempted)

Fee includes, course material, course kit, twin-sharing/single AC accommodation as per availability, breakfast, lunch, dinner, tea / coffee and snacks during the actual days of training programme.

DISCOUNT:

Additional 10% discount for three or more participants, if sponsored by the same organization. SPAN Card No **AAATT3439Q**; GST No. **36AAATT3439Q1ZV**. H.S. No. 999293 (Under commercial training or coaching services – clause 65(105) (ZZC) of Finance act – 1994).

Programme fee is to be paid in in favor of “**THE INSTITUTION OF ENGINEERS (INDIA) – ENGINEERING STAFF COLLEGE OF INDIA**” in the form of Demand Draft (DD) payable at Hyderabad. Alternatively, the payment may be made by Electronic Fund Transfer (EFT) to ESCI - SB A/c No. **10007111201** with **State Bank of India**, P.B.B / Khairatabad, Rajbhavan Road, Hyderabad-500004 by RTG's/ NIFT / **IFSC Code No: SBIN0004159**. While using EFT method of payment, please ensure to communicate us your company name, our Invoice reference and programme title.

REGISTRATION:

To register, please send your nominations by providing name, designation, contact address, email address, mobile no, telephone and fax number of the participant along with the details of mode of payment of fee, addressed to: dpc@escihyd.org/mechanical-dpc@escihyd.org. For more details please contact our program assistant, **Mr. K. Raghuveera Reddy, Mobile No: 9849988930**.

GENERAL INSTRUCTIONS:

- ESCI encourages participants to present case studies from their respective organizations.
- ESCI provides complimentary accommodation and boarding to the participants one day before commencement (Check-in 12:00 h) and one day after conclusion (Check-out 12:00 h) of the programme duration. Overstay charges will be applicable as per ESCI rules (subject to availability of accommodation).
- Well-developed Information Centre and Internet facilities are available to the participants free of cost.