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)

Organizing

Continuing Professional Development Programme on

Aerospace materials Selection, Processing, Testing, Qualification, Certification and Applications

02 – 06 June 25

INTRODUCTION

Aerospace materials technology has seen extensive and diverse development, playing a crucial role in national defense, transportation, space exploration, research, education, and startups. These materials must withstand extreme conditions, including high temperatures, radiation, and mechanical stress during flight. Selecting suitable materials for aerospace applications is complex and demands deep knowledge of their properties.

The aerospace industry relies on a range of materials—from high-strength steels and titanium alloys to lightweight aluminum, magnesium alloys, and composites. Modern aircraft engine manufacturing uses advanced techniques such as vacuum melting, investment casting, and composite fabrication. Aircraft engines, in particular, present some of the toughest challenges due to high operating temperatures and exposure to corrosion and erosion. Ongoing research aims to enhance both the design and processing of structural materials, making aerospace materials technology a key driver of innovation in the field.

OBJECTIVES

The objectives of the programmeare:

- Select appropriate aerospace materials based on specific applications
- Understand processing technologies for aerospace materials
- Identify testing standards and requirements for aerospace materials
- Address quality considerations and implement quality assurance plans
- Follow methodologies and qualification processes set by third-party inspection agencies
- Manage documentation procedures and compliance protocols

COURSE CONTENT

The following topics will be covered during the training programme:

- Introduction and overview of aerospace materials
- Design and selection criteria for aerospace materials
- Selection and application of ferrous and non-ferrous metals and alloys
- election and application of composite, thermoplastics and Nano materials
- Advanced processing technologies in melting, forging, castings.
- Surface engineering and Special coating technologies
- TBCs and EBCs for Gas Turbines
- Qualification tests for aerospace materials
- Common failures in aerospace components
- Certification process of Aerospace materials
- Documentation process and procedures
- Furnace calibration significance, process and standards
- Advances in Instrumentation systems for Heat treatment
- Overview of AS 9100 and NADCAP
- Review of Aerospace QMS standards
- Case studies with Industry visit.

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, persons engaged in 3rd party inspection 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 ADVISOR & RESOURCE PERSON

Shri. G.V.R Murty
Former General Manager, MIDHANI
Advisor, DPC-MD, ESCI, Hyderabad

COURSE DIRECTOR

Dr. N V S S Sagar
Faculty
Design Prototyping Center and Mechanical Division
Engineering Staff College of India
Gachibowli, Hyderabad.
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PROGRAMME DATES: 02 – 06 June 25

COURSE FEE: Rs. 22,500/- (Rupees Twenty Two Thousand Five Hundred Only) per Participant + GST@18% Extra. 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. s*PAN 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, Ms Sameera, Mobile No: 7416 409 119.

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.