



## INTRODUCTION

Composites are able to meet diverse design requirements with significant weight savings as well as high strength-to-weight ratio as compared to conventional materials. The volume and number of applications of composite materials have grown steadily, penetrating and conquering new markets relentlessly beyond the aerospace domain. They are extensively used in Aircrafts, Boats, Automobiles, Construction and General Engineering in applications ranging from covers, enclosures to load bearing structural members. They are being preferred for Light-weighting, durability, strength and mould-ability into deep and complex shapes.

However, the challenges associated with using composites come from the complex manufacturing processes and technologies for fabricating the parts. It requires the simultaneous consideration of various parameters such as component geometry, production volume, reinforcement & matrix types, tooling requirements, process and market economics. The myriad choices available make it imperative that the functions of economics, design and manufacturing be integrated during the development process.

In order to present a holistic overview of Composites, how to design using composites, manufacturing, equipment, quality concerns and acceptance standards; Indian Machine Tool Manufacturers' Association (IMTMA) is organising a six hour online programme on this topic.

## FOCUS AREAS

- Composites-general information, types, raw materials , properties
- Manufacturing of composites
- Equipment & processes for manufacturing parts from composites
- Challenges in machining & laser cutting of composites
- Defects in composites
- Non-destructive testing for composites
- Designing & simulation with composites
- Composites in aerospace, automotive, construction & general engineering
- Light-weighting potential with use of Composites
- Economics of Composites as compared to alternative technologies
- Case studies from Aerospace and Defence sector

## KEY TAKE AWAYS

At the end of the program, participants shall understand:

- Lightweighting potential with composites
- Leveraging anisotropy
- Pulse echo testing,through transmission testing,transducers
- Reference standards for testing
- New developments in ultrasonic testing, advantages & limitations of ultrasonic testing
- Industry concerns
- Nadcap audit overview

## FEE PER PARTICIPANT (PER LOGIN)

**Rs. 4000/-**

+18% GST

**IMTMA Members/ Micro Companies/ Individuals/ Educational Institutions / Students/ IMTMA Non Members/ Others**

## FACULTY

This programme will be conducted by **Mr.Chandran Kollon, Mr.Avinash Khare, Mr Rajeeva Rao and Mr Soumik Chakrabarty.**

**Mr.Chandran Kollon** a Technology professional, is currently associated with TAML ( Tata Advanced Materials Ltd ) Bangalore as a Consultant. Prior to this, he has worked for over 25 years with HAL Composite Manufacturing Division at Bangalore as Chief Manager Quality – NDT . He specializes in NDT for Composites & Ultrasonic Testing as per NAS and ASNT respectively. He is a Post graduate in Mechanical engineering from Osmania University, Hyderabad.

**Mr.Avinash Khare** is presently working as a Consultant Head for IMTMA Pune Technology Centre for last 5 years; he has been designing, developing content and delivering wide range of Training Courses as a Faculty. He is Electrical Engineer by Qualification and he has worked for over 33 years at Tata Motors Pune in various capacities ranging from R&D in Industrial Electronics, Machine Maintenance, Technology Procurement, Head of Machine Shops, Tool Room Shop Head, Head of Die Design and Champion in Business Excellence. He has taught Instrumentation and Bio Medical Instrumentation at Pune University as part time faculty.

**Mr Rajeeva Rao**, who currently works as Head of Manufacturing Engineering at TATA ADVANCED MATERIALS LTD, Bangalore for over 9 years, prior to which, he has worked for over 15 years in the Production department for Composites manufacturing at Hindustan Aeronautics Ltd, Aircraft division, Bangalore. He is well versed with Product development for Aero structures & Engine composite parts & productionisation. He was instrumental in development & delivery of key parts to customers such as SPIRIT, GKN, CTRM, BOEING, FACC, Airbus, NAL and VSSC.

**Mr Soumik Chakrabarty**, currently associated with Hexagon MSC Software, works as a Business Development manager. He is currently responsible for business growth for X-Stream line of business, for Materials / ICME solutions in the Indo Pacific region, specializing in materials lifecycle management and multi-scale modeling of heterogenous materials, mainly composites and reinforced plastics.

## For Registration Contact

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