

## INTRODUCTION

Composites initially touted as “Aerospace Materials” are fast emerging and finding their applications in Defence, Automotive and other industrial applications. Composite materials are finding increased applications considering their advantages of improved performance through parts consolidation, weight saving and ability to tailor materials properties. The advent of improved CAD and CAE tools have been instrumental in designing optimized composites products considering directional properties. Today’s composites designers can choose their fibres, resin, fibre-resin ratio, changing cross-sections and materials distribution to enhance and optimise performance parameters of end-product.

Keeping this in view, Indian Machine Tool Manufacturers' Association (IMTMA) is organizing an online programme on **“Industrial applications of composites and their manufacturing”**. The program will cover wide range of composites application in Aerospace, Defence and Automotive industries. This program will illustrate various tooling and manufacturing processes currently being used. Program will highlight the Opportunities & Challenges faced by the composites industry and how to get this started. Emerging trends in composites technology and their growth and applications is also the part of this program.

## FOCUS AREAS

- **Introduction of Composites**
- **Application of Composites**
  - Key Drivers of composites application
  - Composites – Advantages & Limitation
  - Examples of Composites applications
    - Aerospace & Defence
    - Automotive
    - Industrial
  - How Composites changed the industry
- **Tooling Design & Tool Manufacturing**
  - Tool design considerations / parameters
  - Type of Tools
  - Composites tools manufacture process
- **Manufacturing Processes**
  - Equipment & processes for manufacturing composites parts
    - Autoclave Process
    - Out of Autoclave Processes
- **Challenges Composites Aerospace & Automotive Industries**
- **Future Trends for Composite materials & processes**
  - Designing & simulation of composites
  - New materials
  - Manufacturing trends
- **Case studies from Aerospace and defence sector**
- **Economics of composites as compared to alternative technologies.**

## KEY TAKE AWAYS

At the end of the program, the participants shall be able to understand:

- Type of Composites & Industrial applications
- Advantages & Limitations of Composites
- Manufacturing Processes for composites
- Tooling for manufacturing composites
- Future Trends and Applications

## FEE PER PARTICIPANT (PER LOGIN)

**Rs. 4500/-**  
+18% GST

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

**USD 135/-**  
**Overseas Participants**

**Group Concession : 20% for 3 to 5 and 30% for 6 and more delegates being nominated from the same company**

## FACULTY

This programme will be conducted by **Mr. N C Sharma**.

Mr Sharma is an engineer by profession, with over 40 years of experience, with key contributions to the Aerospace & defence industry in India. He was associated with Hindustan Aeronautics Ltd for 22 years, with working experience in Design, development & testing of composite main rotor blades for Advanced Light Helicopter (Dhruv) in collaboration with Eurocopter, Ottobrunn, Germany:

- Designed and developed production tool for ALH cockpit
- Developed manufacturing processes for monolithic & sandwich Composite parts for ALH & Light Combat Aircraft (LCA)
- Testing of vital Class-1 Components & assemblies and fatigue life substantiation
- Planning & Execution of infrastructure, facilities & equipment for “Composites Centre of Excellence”
- Development of Composite parts for Dornier -228 aircraft
- He was instrumental in the Tooling & Parts manufacture of the largest Composite Part in India (Radome for Centre of Airborne Systems).

Later he was associated with Bharat Forge, Pune for over 8 years in establishing & developing a centre of excellence for design & manufacture of composite solutions for aerospace application to meet domestic & overseas markets.

He was also associated with Tata Advanced Materials for 7 years as key player in turning around the TAML and making it profitable with improved global and domestic business and focus on Quality, Cost & Delivery holding different functions of Engineering & Program management, Production and Defence business.

He had a 7 year stint in the Automotive industry General Manager – Advanced Engineering at TVS Motor Co.,, with his key contribution in the Design & development of BIW for TVS 3-Wheeler.

## For Registration Contact

**Amarendu Debnath**  
**Programme Coordinator**  
+91 9977133067  
[gurgaontraining-an@imtma.in](mailto:gurgaontraining-an@imtma.in)  
**Dhananjay Talmale**  
9767164221  
[ghananjay@imtma.in](mailto:ghananjay@imtma.in)

## Contact Address

**INDIAN MACHINE TOOL MANUFACTURERS' ASSOCIATION**  
Plot 249F, Phase IV, Udyog vihar, Sector - 18,  
Gurgaon - 122015  
Tata no- +91-124-6463101  
Tel : 0124 4014101 - 04  
Fax : +91-124-4014108

