

## INTRODUCTION

Heat Treatment is a core manufacturing process carried out under controlled application of temperature and atmosphere to optimize certain physical and mechanical properties of metals/alloys. Heat treatment is an enabling process that can improve product performance by increasing its strength or other desirable characteristics such as machinability, formability, ductility, etc. The process of heat treatment has a major bearing on the quality of the end product and finds a wide application in many industries such as Automobile & Auto Components, Dies & Mould, Machine Tools, Aerospace, General Engineering and so on.

Keeping this in view, Indian Machine Tool Manufacturers' Association (IMTMA) is organising a 2 day programme on "**Heat Treatment-Metallurgy and Processes**"

## FOCUS AREAS

- Introduction to Heat treatment process. Understand basics of heat treatment through Iron-Iron carbide equilibrium diagram and TTT diagram
- Classification of Heat treatment processes
- Bulk(through) heat treatment processes
  - Annealing, Normalizing
  - Hardening and tempering
  - Austempering, Martempering
  - Precipitation hardening
- Surface heat treatment processes
  - Carburizing
  - Flame and Induction hardening
  - Nitriding
- Structural changes during heat treatment
- Concept of Hardenability and factors affecting it
- Role of alloying elements in hardenability

## KEY TAKE AWAYS

After undergoing the programme, the participants will be able to -

- Understand heat treatment process.
- Understand Types and application of heat treatment processes.
- Learning structural changes during heat treatment.
- Understand role of alloying element and quenching media in heat treatment.
- Understand hardenability and its importance.

## PARTICIPATION FEE

**Rs. 9500/-**  
+18% GST

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

**USD 380/-**  
**Overseas Participants**

**Group Concession : 10% for 3 to 5 and 20% for 6 and more delegates being nominated from the same company**

## PARTICIPANT PROFILE

This programme will benefit Designers, Production Engineers involved in Heat Treatment processes (In-house / Subcontracted), Quality & Inspection engineers from Automobile & Auto ancillaries, Die & Mould, Machine Tools, Aerospace, General Engg., Defense & Railway units and other related Manufacturing industries.

## FACULTY

This program will be conducted by **Mr. Ganapathi K N,**

**Mr. Ganapathi K N,** is presently working as Advisor at IMTMA, having 16 years of industrial and 16 years of academic and training experience. He is a mechanical engineer with post graduate in metal casting science and engineering. Prior to IMTMA, Ganapathi has worked at various capacity in manufacturing companies. He has thorough knowledge of Materials, Metallurgy, Metal casting and heat treatment processes. He has carried out many specialised programmes on metal casting technologies, Metallurgy and heat treatment for industries. He has also taught these topics to post graduate engineering students. At IMTMA his role is to develop and introduce new programmes for enhancing competitiveness of Industries.

### For Registration Contact

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