

## INTRODUCTION

The demand for a superior product at a lower cost is an ever growing demand. Engineers and scientists in organizations constantly researching to achieve this objective. About 70-80 percent of the components of industrial products, whether they are automotive or non-Automotive products are manufactured out of various types of steel due to its favourable cost to strength ratio. Steel properties can be changed to meet the manufacturing process standard to meet the design requirement by suitable heat treatment processes. Therefore in-depth knowledge of different Industrial heat treating processes is essential to find solutions to the problems quickly and effectively.

Keeping this in view, Indian Machine Tool Manufacturers' Association (IMTMA) is organising 2 day online programme on “Advanced heat treatment processes”

## FOCUS AREAS

1. Review of Basic heat treatment principles
2. Iron Carbon diagram, TTT diagrams, effect of alloying elements
3. Various quenching media, its properties with respect to Heat treatment
4. Hardenability concept, calculation, effect of alloying element etc.
5. Different Advanced heat treatment processes, Principles, Equipment and their applications
  - a. Isothermal annealing
  - b. Vacuum heat treatment processes
  - c. Induction hardening, coil design, coil failure with examples
  - d. Vacuum carburizing
  - e. Carbo Nitriding and Nitro Carburizing
  - f. Laser hardening
  - g. Electro beam hardening
6. Industry case studies in each process
7. Heat treatment furnaces
8. Defects in heat treating and remedies
9. Distortion and cracking control
10. Heat treatment simulation using CAE approach

## KEY TAKE AWAYS

After undergoing the programme, the participants will be able to learn about.

1. Heat Treatment principles and practices.
2. Importance of various quenching media, its properties with respect to Heat treatment
3. Hardenability concept, calculation, effect of alloying element etc.
4. Different Advanced heat treatment processes, Principles, Equipment and their applications
5. Defects in heat treating and remedies, Distortion and cracking control.
6. Heat treatment simulation

## 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**

### For Registration Contact

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