Manufacturing Technology Training
An IMTMA initiative

Induction Hardening and Other Surface Heat Treatment Processes
Date : 25 to 26 November, 2025
Venue : IMTMA Technology Centre, Pune

INTRODUCTION

Most engineering and automotive parts be it drive line or engine or structural members need to have adequate strength and durability to perform their respective functions. At the same time these parts need to be cost effective. To achieve these twin objective the components are subjected to surface strengthening treatments. Most commonly used surface strengthening treatments are case carburising & hardening and Induction hardening. For engineers the proper knowledge of these processes is essential so that they carry out their jobs effectively.

Keeping this in view, Indian Machine Tool Manufacturers' Association (IMTMA) is organising 2 day programme on **Surface Hardening with special focus on Carburising and hardening and induction hardening.**

FOCUS AREAS

- Understanding of Basic metallurgy of Iron , Crystal structure, phase transformation, Iron carbon diagram, TTT diagram
- Concept of Hardenability and factors affecting it. Role of alloying elements
- Classification of surface heat treatment processes
- Induction hardening process with principle and equipment used
- Different Inductor designs
- Materials for Induction hardening
- Case carburising and hardening process
- Quenching and distortion control
- Nitriding process
- Heat treatment defects and remedies
- Discussion on case studies from user industries

KEY TAKE AWAYS

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

- Basics metallurgy of heat treatment
- Hardenability and factor effecting hardenability
- Induction hardening processes with induction coil design
- Case carburising and hardening process and different types of furnaces used
- Quenching media selection
- Nitriding process
- Defects in heat treatment, causes and remedies

PARTICIPATION FEE

Rs. 10450/-
+18% GST
IMTMA Members/ Micro Companies/ Individuals/ Educational Institutions / Students/ IMTMA Non Members/ Others

USD 415/-
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 Managers, engineers and supervisors from Automotive and Engineering industries as well as from contract heat treatment plants, Managers and Engineers from any metallurgical plants, R&D, NPD, Students and teaching faculties, Foundry, forging and heat treatment MSMEs, Auto OEMs, Auto ancillaries, Pump manufacturers, Aerospace ancillaries, Defence & Railway Establishment, Faculty from engineering colleges, Students from engineering colleges.

FACULTY

This programme will be conducted by **Shri. S. C. Balawat,**

Shri. S. C. Balawat, is a Metallurgical Engineering graduate from Karnataka Regional College, Surathkal (Now it is NITK Surathkal).He is gold medallist . He has over 40 years of active Industrial Experience in Metallurgy and manufacturing. He has worked in Motor industries Co. Bangalore (now BOSCH) manufacturers of Fuel Injection Pumps and Sparking plugs for 10 years, and for 17 years in Automotive Axles Limited Mysore , manufacturers of Rear Axles for LCV and HCVs. In addition he has worked for 13 years in John Fowler India Limited, Bangalore , a firm specializing in post-harvest Agricultural machinery and primary Tobacco processing machineries. Post retirement in 2012 he is consulting in Manufacturing and Metallurgy for Forging and Foundry industries .He has been associated with IMTMA as faculty for Design Institute in the subject of Heat treatment and metallurgy.

He is a member of The Institute of Engineers (India) as well as the member of Indian Institute of Foundry. He is Council member of Shivamogga Chapter of IIF.

For Registration Contact

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REGISTRATION : Prior registration for participation is necessary. Number of participants is limited and will be accepted on 'First Come First Serve' basis. A Certificate of participation will be issued to participants.
Important Information : Participation fee includes, course material, working lunch and tea / coffee. Interested companies are requested to register online by clicking on 'REGISTER' button and by filling up the nomination authority and participant's details in specified form.