

Training Title

**HEAT TREATMENT**

Training Duration

5 days

Training Venue and Dates

REF ME077	HEAT TREATMENT	5	19 - 23 January, 2020	\$4,500	Dubai, UAE
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In any of the 5 star hotels. The exact venue will be informed once finalized.

Training Fees

- 4,500 US\$ per participant for Public Training. . Fees Includes Course Materials/ Handouts, Tea/Coffee, refreshments, International Buffet Lunch.

Training Certificate

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

TRAINING OBJECTIVES

Objective of the course on the topic “heat treatment” is develop understanding on principles of heat treatment of ferrous and non-ferrous metals of commercial importance so that participants are able to design the heat treatment cycles for improved the mechanical and tribological performance of engineering components after the heat treatment. Heat treatment operations of commercial importance shall be covered in detail (using suitable case studies) for their better understanding and applicability. Heat treatment of ferrous metals such as steel (alloy and plain carbon steels) and cast irons would be in focus as these are most widely used metallic materials in industries.

TRAINING METHODOLOGY:

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions, and motivate everybody find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course. Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work& Practical Exercises
- 20% Videos& General Discussions

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**COURSE OUTLINE**

**Heat Treatment of Ferrous Metals**

- Importance and significance of heat treatment, basic material science important from heat treatment point of view and structure-property relationship
- Basic principles of heat treatment of steel and cast iron i.e. Fe-C diagram, TTT diagram and CCT diagram, Hardenability concept and measurement of hardenability.
- Principles and methodologies of heat treatment processes viz. Annealing (full and stress relieving), Normalizing, Quenching, Tempering, Martempering and Austempering.
- Case Hardening and surface hardening: Principles and Processes viz. carburizing, nitriding, flame and induction hardening etc.

**Heat Treatment of Non-ferrous metals**

- Principles of heat treatment (solutionising, quenching and ageing) of Aluminum, Copper and Magnesium Alloys systems of commercial importance (different temper conditions, natural and artificial aging).

**NOTE:**

**Pre & Post Tests will be conducted**

**Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.**



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