

# TRAINING COURSE ON HEAT TREATMENT

## 20-21 MAY 2024



UNIVERSITI  
SAINS  
MALAYSIA



Assoc. Prof. Dr. Nurulakmal Mohd Sharif  
&  
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Seman

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### INTRODUCTION

Steel production has evolved over many centuries and new technological improvements are being made daily. The making, shaping and treating of steel are critical to product design, application, cost and performance. Steel can be heat treated to tailor the properties, such as strength, hardness, toughness, etc. Thus, understanding of the heat treatment process is vital in ensuring the steel product can be produced according to the intended requirement and suited to the applications. This is an introductory course suitable for those who have little or no technical background in metallurgy. It is perfect for those handling heat treatment process in industry, in order to give better understanding of what happens during heat treatment and how the process can be manipulated to suit the product's needs. It is hoped that after taking this course, the participants will understand the technical aspects behind heat treatment process for steel.

### WHO SHOULD ATTEND

This course is intended for mechanical, industrial and manufacturing engineers, metallurgists, machine shop superintendents and managers in heat treating operations.

### COURSE CONTENTS

- \* Introduction to Steel: Alloy Constitution, Typical Microstructure, Classes in Steel Family
- \* Phase Diagram & TTT Diagram
- \* Heat Treatment of Cast Iron
- \* Heat Treatment of Special Alloy (HSS, Low Alloy Special Purpose Steel)
- \* Heat Treatment of Stainless Steel
- \* Weld-Ability and Heat Treatment of Welded Steel
- \* Transformation and Heat Treatment of Carbon Steel
- \* Strengthening of Plain Carbon Steel
- \* Tempering, Martempering & Austempering
- \* Surface Treatment
- \* Heat Treatment of Aluminum Alloys

### REGISTRATION FEE AND ADMINISTRATIVE DETAILS

Members / Non-Members: RM1,500 per participant

Deadline For Registration: **16 May 2024 (Thursday)**

No refund will be entertained although participants can be substituted at any time.  
The organizer reserves the right to cancel, reschedule, postpone or amend the course date/venue/programme, due to unforeseen circumstances.

**ORGANISED BY: MALAYSIAN IRON AND STEEL INDUSTRY FEDERATION (MISIF)**  
**SUPPORTED BY: SOUTH EAST ASIA IRON AND STEEL INSTITUTE (SEASI)**

# TRAINING COURSE ON HEAT TREATMENT 20-21 MAY 2024



## DATE AND VENUE

Date : **20-21 May 2024 (Monday-Tuesday)**  
Time : **9.00 a.m. – 5.30 p.m. (Daily)**  
Venue : **MISIF Training Room, Shah Alam, Selangor**

## SKIM BANTUAN LATIHAN

Companies registered with HRD Corp can apply for refund under Skim Bantuan Latihan (SBL) Scheme.

## ABOUT THE TRAINERS (HRDC Certified Trainers):

**Assoc. Prof. Dr. Nurulakmal Mohd Sharif** joined USM Engineering Campus in 2001 after completing her PhD in Materials Engineering (Metallurgy) from University of Wales Swansea, United Kingdom. She is currently an Assoc. Professor at School of Materials & Mineral Resources Engineering, USM. She has obtained several grants from USM, JICA, MOHE, MOSTI and CREST to develop alloys for high temperature application, metal composites, development of lead-free solder alloy and metal coating. She was a member of the MLVK advisory board (Steel making & Foundry) (2007), MARA advisory board (Electroplating Technology Certificate and Diploma in Foundry) (2011) and also has conducted many training courses for MISIF, Intel, KOBE Precision, Kilang Sprocket, Southern Steel, KPTEch and others. Consultation works include heat treatment on steel, microstructure studies and recycling of solid waste into valuable product.

**Assoc. Prof. Ts. Ir. Dr. Anasyida Abu Seman** is a lecturer at School of Materials and Mineral Resources Engineering, USM Engineering Campus since 2010. She has completed her PhD in Materials Science from Universiti Kebangsaan Malaysia. Her research interest includes casting, severe plastic deformation, metal coating, welding, wear and soldering. Previously she worked as senior process engineer in Flex (formerly known as Solectron) for about 6 years. She has obtained several grants from USM, MOHE, AUNSEED/Net and MOSTI to develop aluminium composite, semi-solid aluminium alloy, friction stir welding, and ultrafine grained structure for aluminium and steel. In term of supervision, she graduated 18 postgraduate students as main and co-supervisor. She also actively giving technical talk to several industries such as Southern Steel, Kobe and MISIF.

## REGISTRATION FORM

Please register the following person/s for the “**Training Course**”:

**FEE: MEMBERS / NON-MEMBERS: RM1,500 PER PARTICIPANT.**

### **PLEASE TYPE IN BLOCK LETTERS:-**

1. **NAME:** \_\_\_\_\_ **DESIGNATION:** \_\_\_\_\_  
**EMAIL:** \_\_\_\_\_ **TEL NO:** \_\_\_\_\_
2. **NAME:** \_\_\_\_\_ **DESIGNATION:** \_\_\_\_\_  
**EMAIL:** \_\_\_\_\_ **TEL NO:** \_\_\_\_\_
3. **NAME:** \_\_\_\_\_ **DESIGNATION:** \_\_\_\_\_  
**EMAIL:** \_\_\_\_\_ **TEL NO:** \_\_\_\_\_

**SUBMITTED BY:** \_\_\_\_\_

**DESIGNATION:** \_\_\_\_\_ **EMAIL ADDRESS:** \_\_\_\_\_

**COMPANY NAME:** \_\_\_\_\_ **TEL NO:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_



## FOR INFORMATION

Ms. Norlian Mohamed Najib  
**MALAYSIAN IRON & STEEL INDUSTRY FEDERATION (MISIF)**  
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