

## 2-day Technical Training Course (HF03)

### Program: Manufacturing Insight Skills (MIS)

#### Session Topics - "Hot Forging Die Quality & Performance"



#### Course Objective:

The objective of this patented MIS program is to raise technical competency of technical employees from local manufacturing industry for product quality & productivity improvement through understanding of vital manufacturing variables. At the end of the MIS training, participants will realize the importance of technical details study & the introduction of science & engineering procedures to their existing practices for a profitable manufacturing operation.

#### Session Overview:

Hot forging dies are subjected to both high thermal and mechanical stresses. This complex stress situation can affect forging die performance and limit their service life. The die material used must have a sufficient resistance against dynamic bending, cracking with varying temperatures, wear and plastic deformation. For these reasons proper tool material combined with engineering tool design, fabrication and heat treatment must be closely controlled in order to produce a reliable hot forging tool with good temper resistance, good wear resistance, high hot yield strength, good thermal conductivity and good thermal fatigue resistance.

The 3<sup>rd</sup> series of Hot Forging training program developed by *Mr William Lee* is specially designed to build up technical competency of engineering and technical staff from hot forging industry on how to attain minimum hot forging die quality for performance and durability. Course participants will learn the insights of hot forging die materials, their properties for hot forging application and potential risk factors during tool material selection, tool making & hardening process which can affect the die life and performance.

#### Benefits:

1. Develop & strengthen technical competency in tooling materials selection and their processing control in making a high quality & durable hot forging die.
2. Gain an insight of the tool making variables (machining and hardening) & how they can impact forging die quality and performance.
3. Introduce science & engineering procedures to existing hot forging die preparation.
4. Train to be multi-skills & multidiscipline technical personnel for effective technical auditing on hot forging die and their processing controls.

#### Target Participants:

This course is recommended for forging engineers, shop supervisors, plant managers, quality controllers, die makers or any skilled trade personnel (including technical buyers) who work with hot forging products, process and die life improvement programs. The 2-day technical program will be valuable for automotive & forging industries.

## Course Contents:

### CHAPTER 1: Tooling Materials for Forging

Tooling materials classification & designations. Effect of alloying elements in tool steels.

### CHAPTER 2: Tooling Properties & Performance

Wear resistance; Gross cracking resistance; Die deflection resistance; Thermal fatigue resistance.

### CHAPTER 3: Hardening Quality & Control

Good practices in die steel hardening; The 5 desirable quality hardening results.

### CHAPTER 4: Machining Damage & Control

Grinding damage; Electrical discharge machining damage; Proper pre-during-post treatments for die steels machining.

## Course Instructor:



William Lee - Malaysian, Materials Engineer with an honorable Bachelor Degree awarded by The Engineering Council of London (EC, UK). He has over 25 years working & teaching experience in manufacturing industry. William possesses strong fundamentals knowledge in technical science & has special talent to communicate and explain to others the principles involved in various engineering fields. His ability to present and link the various

engineering disciplines with real industrial use has made many of his course participants to appreciate the significant of technical details study for manufacturing improvement. Over the years, he has developed a series of patented Manufacturing Insights Skills (MIS) Training programs for various manufacturing industries. He is now a full time contract speaker for a few training organizers as well as professional associations in ASEAN & Australia. William will bring a wealth of teaching experience to this program along with his strong industrial background as a former engineering practitioner in tooling, materials, heat treatment, moulding & metal forming divisions. In addition, William is a versatile trilingual instructor who can instruct technical courses in English, Bahasa Malaysia or Mandarin (or a combination of the languages) to ensure full understanding of his presentation by his trainees from all levels.

## Administrative Details:

1. Should public training not be scheduled for this program we will consider opening an ad hoc public training class if you've minimum guaranteed participants to attend this program.
2. We can bring this program to your premises as in-house training event for your in-house employees only. Interested participating company may contact us for an in-house training proposal.
3. In-house training can be conducted on weekdays or weekends (including public holidays) to meet the scheduling needs of your targeted staff.
4. All programs are of SBL (Skim Bantuan Latihan) type. Eligible company (Human Resources Development Fund contributor) must apply through themselves for the rebate of any eligible expenses (including training fees) from Human Resources Development Council. Training provider bears no responsibility for the approval of training grants or any form of rebates between participating company and HRDC.



Organized by:

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