

2-day Technical Training Course (HF02)

Program: Manufacturing Insight Skills (MIS)

Session Topics - "Engineering Materials for Hot Forging"



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:

A wide variety of materials can be used for forging, but by far the largest proportion of parts produced is from carbon and alloy steels, with a significant number also made from light alloys such as Aluminium. Quality of hot forged parts involved strength, toughness and geometry. The material selected for a forging application must be able to achieve the required physical and mechanical properties. Forging difficulty vary according to type of selected forging material. For example, many high-strength aluminium alloys are more difficult to process than steels. Increase in forging difficulty is represented by increased forging load requirements and usually reduced die life. In addition, for the more difficult to deform materials it may be impossible to obtain very thin sections (ribs and webs), and consequently the end product must be less close to net shape than for the easier to forge materials.

This **second 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 understanding of forging materials.

Benefits:

1. Develop & strengthen technical competency in forging materials classification and selection.
2. Gain an insight of the forging materials quality & properties & how they can impact the forged parts quality and performance.
3. Study selection guidelines and testing procedures to choose and determine forging materials quality and properties.
4. Train to be multi-skills & multidiscipline technical personnel for effective technical auditing on hot forging materials 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: Carbon Steel

Classification & designation; Effect of alloying elements in steels.

CHAPTER 2: Aluminium Alloys

Classification & designation; Effect of alloying elements in Al alloys.

CHAPTER 3: Materials Discontinuities & Causes

Inherent (melting) discontinuities; Primary processing (forging) discontinuities; Finishing processing (machining) discontinuities; Service (performance) discontinuities.

CHAPTER 4: Materials Testing & Methods

Hardness test; Metallography test; Mechanical test.

Course Instructor:

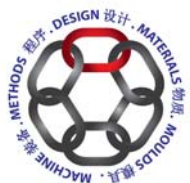


William Lee - Malaysian, Materials Engineer with an honorable Bachelor Degree awarded by The Engineering Council of London (EC, UK). He has over 25 years working & teaching experience in manufacturing industry. William possesses strong fundamentals knowledge in technical science & has special talent 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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◆ Developing K-Workers; Promoting Scientific Manufacturing ◆