

2-Day Technical Skills Training (ME04)

"Aluminum Alloys & Its Heat Treatment"

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:

As an important engineering material, aluminum has become almost indispensable for the advancement of transportation technology. Proper alloy understanding is a fundamental first step in order to enjoy the appreciable engineering values expected from aluminum alloys. Suitable heat treating processes include solution treatment, age hardening, stress relieve & annealing will give it a final touch to change the mechanical properties, the metallurgical structure, or the residual stress state of a fabricated aluminum product for application required reliable structure, strong, fracture-and-corrosion resistant parts such as airframes, bicycles, engines, parts, missile bodies, fuel cells, satellite components, engineering structures etc.

This course is specially designed to train participants familiar with the alloy & temper designations, general properties & testing methods, metallurgy of aluminum, heat-treating principles & controls.



Your Workshop Leader **William Lee**

Technical Training Expert
Dip Tech (TARC);
B.Eng (Hons) EC, UK.



Course Content:

1. Aluminum Alloys Classification

- The making of Aluminum.
- Alloys designations (wrought & cast alloys).
- Temper designations (F,O,W,H,T).
- Temper similarities.
- Heat treatable & non heat treatable alloys.

2. Properties of Aluminum & Testing

- Mechanical & physical properties.
- Alloying elements functions.
- Hardness test: Rockwell, Knoop, Barcol, Microvickers, Shore scales, Scleroscope.
- Tensile test: Stress-strain measurement, yield & ultimate strengths, reduction in area.

3. Metallurgy of Aluminum

- Microstructures & phase diagrams
- Solute hardening
- Work hardening
- Precipitation hardening
- Cold & hot working
- Recovery & recrystallization

4. Heat Treating of Aluminum Alloys

- Solution treatment; Quenching; Ageing.
- Distortion control (Racking & Quenchant)
- Holding time
- Handling time
- Refrigeration

Benefits:

1. Learn the nomenclature of aluminum alloys & its various temper designations.
2. Understand the properties of aluminum alloys & various testing methods.
3. Study metallurgical basis for aluminum.
4. Recognize the many aluminum thermal treatments & its objective.

Target Participants:

Personnel involved with any facet of the production, selection, use and fabrication of aluminum and its alloy will greatly enhance their knowledge and expertise of this light metal by completing this course. It is especially suited to designers, metallurgists, heat treaters, technicians, quality control personnel, technical buyers, managers and engineers involved with aluminum and its products.

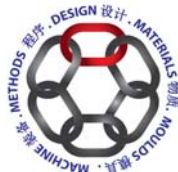
Course Instructor



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. For in-house training, a list of participants complete with their full name & designation must be presented to training provider one week prior commencement of each program. The total no. of training manual is supplied to the actual no. of turned out attendees only.
5. Substitute is allowed to replace the earlier registered person if he / she is unable to attend the training program (both public and in-house training). Participating company must inform us the details of replacement person.
6. 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:

METALLOY CONSULTANT SERVICES PLT

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(Registered Training Provider under PSMB: LLP0003449-LGN)

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