

Session Code: **DC04**

**Manufacturing  
Improvement  
Training Program**

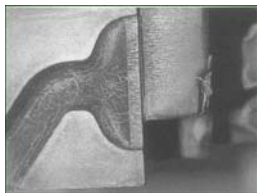
2-day Technical Training Course

**Program: MANUFACTURING INSIGHTS SKILLS (MIS)**

**Session Topic: Die Performance Control for Quality Casting**

**By: William Lee**

**SBL TRAINING PROGRAM**



**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**

Pressure die casting involves filling molten metal into a steel die having a cavity with the negative shape of the casting. Besides determining the shape of the casting product, the die acts as a heat sink to cool the casting, provide a vent for trapped air & gases, and contain the mechanism to eject the finished part. Die steel quality & properties are critical factor to ensure the reliable performance of the die for a successful die casting process. The price for premature failure of die is heavy as it involves excessive overhead cost in the die running such as frequent die maintenance (replacing of worn or broken parts, regrind, cleaning, weld repair and re-plating). Worst still, die failure may also cause rejects in casting parts, overtime payments, penalties in late-delivery and loss of company privileges. This course will detail how common die failures can affect casting defects and ways to maximize the life and performance of the production tool. Participants should learn influencing factors for tooling economy on die casting productivity improvement.

**Benefits**

1. Learn how to inspect the die casting dies quality and examine possible metallurgical damage from die making process to reduce the risk factor in die casting production.
2. Understand failure mechanism of common die failures & how to troubleshoot the problems.
3. Study the selection criteria for quality die steel materials.
4. Examine the influence of hardening quality on die performance.

**Course Content**

**1. Die Casting Dies Failures & Mechanisms**

Erosion, hot wear, soldering problem, bending, thermal fatigue or heat checking, Gross cracking including thermal shock.

**2. Die Components, Die Steel Properties & Quality**

Functions of die components; acceptance criteria for pressure die casting dies on die steel quality.

**3. Die Heat Treatment, Machining & Welding Control**

Hardening & surface coatings for die performance; machining process and control; proper welding procedures for die casting dies.

**4. Troubleshooting Die Failures**

4-step troubleshooting process; Study of the background information; Comparison of best practices; Finding root causes; Corrective actions.

## 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.

## Target Participants

This course will be of interest to practicing die casting staff, to designers, quality managers, controllers and production engineers & supervisors. Buyers and users of castings and industry executives would also gain a better understanding of the benefits and issues involved when designing die casting die to achieve quality die casting parts.

## 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:

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