



HYBRID TRAINING
24 & 25 Feb 25 (Mon & Tue)



Remote Online Training (**Zoom**) &



Wyndham Grand Bangsar Kuala Lumpur Hotel (**Physical**)

**** Choose either Zoom OR Physical Session**



14 hours **ZOOM & PHYSICAL** Program

PLASTIC INJECTION MOLDING DEFECTS PREVENTION & ROOT CAUSE ANALYSIS



OBJECTIVES:

- 1) How to prevent defects from occurring in the first place?
- 2) Eighty % of plastic parts problems originate from poor design.
- 3) Gap analysis between DFM (Design for Manufacturing best practices) and your actual problems
- 4) Root cause analysis
- 5) Troubleshooting injection moulding defects in a systematic manner
- 6) Implementing sustainable measures in place to prevent defects recurrence
- 7) Scientific explanations on why these problems occur.

INTENDED AUDIENCE:

This course is recommended for those who wish to improve their preventive & problem solving skills in plastic injection moulding design and process. It is also highly beneficial to companies aiming to improve productivity and optimise their injection moulding design and process methodology. A variety of people will benefit from this course. They include:

1. Managers
2. Designers
3. Engineers
4. Executives
5. Supervisors
6. Technicians
7. Any technical personnel involved with plastic injection moulded parts

INTRODUCTION:

Specifically designed for the practicing designer and molder.

This workshop focuses on prevention methods for defects and developing systematic root cause analysis skills. For solving molded-part defects and improving part quality problems.

METHODOLOGY:

- 1) Interactive and action based with personal examples.
- 2) Combination of short lectures, visual presentations, workshops, demonstrations, simulations, and games.
- 3) More emphasis is placed on workshops to allow the participants to learn the material presented in a fun and easy manner.

PREREQUISITE :

- 1) Participants must already have the basics of injection moulding technology.
- 2) Customer to provide ahead 5 top common issues that they have and the specific parts so that the trainer can use these as case studies during the training for optimum training effectiveness.

COURSE CONTENT

1. Plastic drying

- i. Degradation
- ii. Drying time
- iii. Drying temperature
- iv. Types of dryers
- v. Moisture measurement
- vi. Overdrying effect

2. Process optimization & scientific molding

- i. Optimization of injection phase
- ii. Cavity balance
- iii. Pressure drop
- iv. Process window
- v. Gate seal time
- vi. Cooling time
- vii. Screw speed & back pressure

3. Surface Defects

- i. Flow lines and jetting
- ii. Splay (moisture or trapped air)
- iii. Haze, blush, and poor gloss
- iv. Mold mark
- v. Gate blush and gate splay
- vi. Ink smearing
- vii. Incomplete molding
- viii. Race tracking
- ix. Jetting
- x. Moldflow simulation errors

4. Burning and Contamination Problems

- i. Burn marks and black specks
- ii. Burn streaks
- iii. Contamination
- iv. Discoloration or poor color match

5. Physical Problems

- i. Flash
- ii. Short shots
- iii. Sink marks
- iv. Vacuum voids and bubbles
- v. Burrs
- vi. Bulging
- vii. Overweight
- viii. Ejector marks

6. Geometry Maintenance Problems

- i. Under- or over-sized dimensions
- ii. Poor dimensional repeatability (poor Cpk)
- iii. Warpage and bowing

7. Structural Defects

- i. Cracking, crazing, and brittleness
- ii. Weld lines
- iii. Stuck parts and pin push marks
- iv. Long gates and plugged gates
- v. Drag marks and mold damage
- vi. Break during assembly
- vii. Break after usage

8. Troubleshooting Procedures and Logic

- i. How to effectively approach, analyze, and implement troubleshooting procedures.

9. Exploring Root Causes

- i. Explore the root causes of the various defects from the perspective of the plastic material as it fills, compresses, and cools within the cavity.

10. Part Defectives and Potential Solutions

- i. How to avoid potential design-related problems?
- ii. How to optimize the part quality with process-related solutions?

11. Troubleshooting Guides (The Good, The Bad, The Efficient)

- i. A comparison of the different troubleshooting guide formats, including which tend to be most effective for solving molded part problems.

12. Evaluating Attendees' Molded Part Samples

- i. Defective part samples brought in by the participants will be discussed in a group format.
- ii. An understanding by the participants of the processing conditions or a current process set-up sheet will greatly facilitate this discussion.