

MPMA TALENT

DEVELOPMENT PROGRAMME

for the Malaysian Plastics Industry

**Subsidised
for
MPMA
Members**

***Advanced Scientific Moulding
Certification***

***Expert Scientific Moulding
Certification***

The MPMA Talent Development Programme is

**designed to assist SMEs develop higher skills
workers and is fully funded* by the Economic
Planning Unit and governed by SIRIM Berhad.**

** Note: The MPMA Talent Development Programme covers training cost only.*

Organised by



Malaysian Plastics Manufacturers Association

What is Scientific Moulding?

- A Scientific Injection Moulding Process can be defined as a consistent, robust and repeatable process based on actual data.
- A Scientific Injection Moulder is a skilled worker who acts upon facts and data, and does not depend on guesswork.
- A Scientific Troubleshooter knows the history of a given process and determines the cause of a defect before making any changes.

Programme Structure

Each comprehensive certification combines:

- 15 hrs Pre-requisite Online Training
- 20 hrs Classroom Training
- 15 hrs Hands-on Practical Exercises
- 15 hrs Post-requisite On-the-job Exercises

SYLLABUS - Intermediate Level: Advanced Scientific Moulder Certification

An Advanced Scientific Moulder Will Learn:

- Detailing the Injection Moulding Process
- Understanding Hydraulic Moulding Machines
- Processing Techniques for All-electric Machines
- Amorphous vs Semi-crystalline Polymers
- Plastic Pressure vs Hydraulic Pressure
- Effective Mould Filling Strategies
- Correct Uses of Injection Profiling
- Determining Efficient Pack and Hold Settings
- Balancing Part Cooling and Part Quality
- Reading and Interpreting Machine Data
- Troubleshooting Injection Moulding Defects
- Machine-independent Process Documentation

Pre-requisite Online Training Include:

- The Injection Moulding Machine
- The Injection Moulding Process
- The Injection Mould
- Understanding Plastics Materials
- Understanding Electric Moulding Machines
- Introduction to Decoupled Moulding
- Decoupled Moulding Techniques
- Reading and Interpreting Data
- Systematic Troubleshooting

Classroom Training Include:

- **Day 1** – An Advanced Look at the Injection Moulding Process
- **Day 2** – Control Systems for Hydraulic and All-electric Moulding Machines
- **Day 3** – Understanding the Complex Behaviours of Polymeric Materials
- **Day 4** – Causes and Corrective Actions for Moulded Part Defects
- **Day 5** – Using Machine-independent Process Documentation

Hands-on Practical Exercises Include:

- Determining Initial Process Settings
- Establishing an Acceptable Process
- Calculating The Shot Volume Factor
- Intensification Ratio Determination
- Determining Actual Plastic Pressure
- Proper Melt Temperature Measurement
- Reading Accurate Mould Temperature
- Determining The Best Packing
- Machine-independent Process Documentation

Post-requisite On-the-job Exercises Include:

- Shot Volume Factor Calculation
- Intensification Ratio Determination
- 2nd Stage Packing Time Optimisation
- Process Documentation Worksheet

SYLLABUS - Advanced Level: Expert Scientific Moulder Certification

An Expert Scientific Moulder Must Complete the Intermediate Level - Advanced Scientific Moulder Certification

An Expert Scientific Moulder Will Learn:

- Machine-independent Process Documentation
- Understanding Scientific Injection Moulding
- Machine Performance Evaluation Techniques
- How to Fine Tune a Moulding Process
- Incoming Material Inspection Methods
- Rheological Properties of Plastics
- Understanding Semi-crystallinity
- Part and Mould Design Strategies
- Methods of Proper Mould Evaluation
- Utilising the Moulding Machine Outputs
- Scientific Defect and Process Troubleshooting
- Melting Behaviours of Thermoplastic Polymers

Pre-requisite Online Training Include:

- Understanding Process Parameters
- Troubleshooting Moulded Defects
- Processing with Electric Machines
- The Effects of Mould Filling, Gating and Weld Lines
- The Effects of Shrinkage, Warpage and Part Ejection

- Math for Moulders – Part 1
- Math for Moulders – Part 2
- Intelligent Moulder 1: Machine Evaluation
- Intelligent Moulder 2: Mould Evaluation
- Intelligent Moulder 3: Process Evaluation

Classroom Training Include:

- **Day 1** – Laying the Foundation for Advanced Scientific Moulding
- **Day 2** – Practical Rheological Properties of Polymeric Materials
- **Day 3** – Evaluating the Performance of Your Mould and Machine
- **Day 4** – Advanced Scientific Troubleshooting Techniques
- **Day 5** – Fine Tuning a Scientific Moulding Process

Hands-on Practical Exercises Include:

- In-mould Rheological Study
- Injection Profiling Techniques
- Tact-temperature Optimisation
- Mould and Platen Deflection Measurement
- Check Ring Performance Evaluation
- Multi-cavity Mould Balancing
- Advanced Process Documentation

ELIGIBILITY FOR THE SUBSIDY

- MPMA members.
- Companies engaged in plastics injection moulding activities manufacturing high-end plastic products.
- Companies with sales turnover of less than RM25 million or full-time employees of less than 150.
- Companies with sales turnover less than RM10 million or full-time employees of less than 50 would be allowed two participants.
- Companies with sales turnover between RM10 million and RM25 million or full-time employees between 51 and 150 would be allowed three participants.

WHO WILL BENEFIT

The **MPMA Talent Development Programme (MPMA TDP)** will benefit Small Medium Enterprises (SMEs) involved in injection moulding activities manufacturing high-end plastic products. Participants will learn practical information and new “hands-on” skills which they can apply at work.



About the Training Provider

A Routsis Associates, Inc (ARA), founded in 1982, provides in-plant training and plastics engineering support to over 2,400 companies worldwide. As the premier training service provider for the plastics industry, ARA offers a comprehensive array of training programmes and services.

ARA's training products are endorsed exclusively by the Society of Plastics Engineers (SPE). The partnership

between ARA and SPE was created to develop training standards for the plastics industry. Additionally, ARA has strategic partnerships with Polymer Training UK [formerly British Polymers Training Associates (BPTA)], Rapra, Anipac and University of Massachusetts, Lowell. All of ARA's courses are compliant to the Society of the Plastics Industry (SPI) operator and technician national certification.

REGISTRATION FORM

Yes, I am interested in the MPMA TDP. Please send me more information:

Name : _____

Position : _____

Company : _____

Address : _____

Tel : _____ Fax : _____

E-mail : _____

Note: This is the first step in the registration process. Once MPMA has confirmed the training dates and venue, you will receive the necessary application forms.

For more information about the MPMA TDP and registration process:

Contact : Ms Sujata Albert / Ms Whendi Wong
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Tel : 603-7876 2333 / 603-7876 3027
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