

First
Polymer
Training

Skillnet

Injection Moulding Module 2



For bookings contact:
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Overview... Injection Moulding Module 2

Introduction

This 4-day programme focuses heavily on troubleshooting. It is suitable for operators, team-leaders, tool setters, technicians and engineers with extensive moulding experience, or those who have completed the Module 1 course or equivalent.

On successful completion of the course, trainees will be awarded a QQI Level 5 Component Certificate in Injection Moulding (5N3036)

Learning Outcomes

At the end of the course trainees should be able to:

- Competently troubleshoot common moulding part defects such as flash, sinks, short shots, burn marks, weld lines, voids, bubbles, jetting, drag marks, splay, warpage and dimensional issues
- Clearly follow logical and systematic steps to find root cause and eliminate defects
- Make logical adjustments to process parameters and predict the likely impact of making such adjustments
- Fully understand and work competently with injection speed/pressure/stroke curves
- Set up and optimise injection speed profiles and holding pressure profiles
- Understand the different processing requirements for various thermoplastic materials, and take account of each materials specific handling and preparation requirements
- Understand the difference between crystalline and amorphous materials, how these differences affect shrinkage/dimensional and mechanical properties, and their implications for process settings
- Record machine outputs as a data bank to aid future troubleshooting work (i.e. record data from the optimised process)



Who should attend

The course is particularly suitable for those who have completed our Module 1 programme.

It is also suitable for anyone with extensive injection moulding experience but who may not have completed that programme. Such candidates will need to be competent in installing & removing moulds, setting up basic parameters for mould and ejector movements, as well as setting injection, holding, plasticising and decompression. They should be able to safely start up and shut down a moulding machine, and should understand the basics of troubleshooting common moulding part defects.

Course Content

- Detailed analysis of the moulding cycle – injection, holding, plasticising, decompression, mould opening/closing & ejection
- Process parameters and how they influence part quality and consistency
- Detailed focus on specific parameters including material & mould temperature settings, screw speed optimisation, injection speed profiles and holding pressure optimisation
- Reading and understanding speed/pressure/stroke curves
- Systematic troubleshooting; using machine data to help determine defect root cause and drive decision making
- Basic mould design & construction; cooling, venting, gate position & size, clamp requirements and calculation of projected area
- Part design; wall thickness, flow ratios, draft angles, ribs & bosses
- Plastics materials; how preparation and processing parameters vary between material types, and understanding the difference between amorphous & crystalline materials
- Multiple case studies from troubleshooting work the trainer has completed in Irish moulding companies

Much of the course time is spent on practical sessions on our moulding machines - defect correction and troubleshooting, optimising speed/ pressure/ stroke curves, and cycle time optimisation.

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