



**Moldex3D**  
**UNIVERSITY**

## MPE – Moldex3D Plastic e-Learning (Moldex3D University)

### Development Process of Injection Molding

(7hr 55mn)

#### CHAPTER 1 – Procedure of plastic product development

1. Procedure of plastic product development
2. Principles of product development
3. Competitiveness of product development
4. Requirement of product quality

#### CHAPTER 2 – Basic knowledge of plastic materials

1. What is plastic
2. Classification of plastics
3. The property of plastics
4. The application of plastics
5. The recycling of plastics

#### CHAPTER 3 – Development and design of the mold

1. Introduction of procedure for mold development
2. The external structure of injection mold
3. The external specification of mold
4. The runner system
5. The layout of cavity
6. Mold structure and the force exerted
7. Ejection system of mold
8. The design of mold cooling
9. The cost and variation
10. Example of mold design
11. Case study – 32 syringe plunger

#### CHAPTER 4 – The introduction and application of injection molding machine

1. General processing methods for plastics
2. Introduction of injection molding machine
3. Flow chart for the cycle of injection molding
4. Maintenance of injection molding machine
5. Introduction of accessory for injection molding machine

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## CHAPTER 5 – The molding process of plastic products

1. The application of injection molding machine
2. Pre-process of mold trial
3. Mold setup procedure
4. Clean barrel
5. Case study – 37” LCD TV base

## CHAPTER 6 – Causes of product defects

1. Poor part dimensional accuracy
2. Surface defects of products
3. Case study – NB back cover
4. Case study – 23” LCD TV base
5. Case study – Optical lens
6. Case study – Scanner cover
7. Packing process

## CHAPTER 7 – Hot runner operating procedure

1. Operation of hot runner system
2. Mold testing procedure
3. Root causes and solutions for hot runner defects

## Injection Machine Virtual Operation

(1hr 49 mn)

### CHAPTER 1 – Introduction of molding machine operations

1. Introduction of molding machine operations

### CHAPTER 2 – Injection unit settings

1. Injection unit setting - part 1
2. Injection unit setting - part 2

### CHAPTER 3 – Temperature setting

1. Temperature setting

### CHAPTER 4 – Storage setting

1. Storage setting for molten plastic in barrel

### CHAPTER 5 – Injection setting

1. Settings for injection plastics
2. Storage and injection settings
3. Injection step setting
4. Injection ram position setting – part 1
5. Injection ram position setting – part 2
6. Inject in the cavity for packing
7. Fine tuning the product

### CHAPTER 6 – Mold setting

1. The setting for mold closing
2. The setting for mold opening

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## CHAPTER 7 – Ejection setting

1. Ejection settings – part 1
2. Ejection settings – part 2
3. Ejection settings – part 3

## CHAPTER 8 – Two-stage ejection settings

1. Two-stage ejection setting – part 1
2. Two-stage ejection setting – part 2

## CHAPTER 9 – Purging materials procedure

1. Purging preparation
2. Purging parameter setting
3. Manual purging

## CHAPTER 10 – Mold setup procedure

1. Install safety accessories on the mold
2. Measure the thickness of mold
3. Clean the clamp plate
4. Adjust the width of clamp plate
5. Install knockout rod
6. Lift the mold
7. Locate the mold
8. Lock the mold
9. Ejector detection
10. Ejector parameters
11. Adjust mold parameters
12. Adjust mold automatically
13. Install cooling system

## CHAPTER 11 – Mold testing procedure

1. Conform the information
2. Prepare for mold mounted
3. Set up the mold
4. Adjust mold automatically
5. Adjust mold parameters
6. Install cooling system
7. Purge plastic in the barrel
8. Set operation parameters
9. Test the mold by short shot
10. Adjust operation parameters

## Theory and Application of Hot Runner System

(6hr 48mn)

### VOLUME 1

CHAPTER 1 – Introduction

CHAPTER 2 – Brief introduction to hot runner system

CHAPTER 3 – Manifold and nozzle

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CHAPTER 4 – Design principle of hot runner  
CHAPTER 5 – Background knowledge of heat transfer  
CHAPTER 6 – Peripherals equipment  
CHAPTER 7 – Hot runner system installation SOP  
CHAPTER 8 – Defect and solutions

## VOLUME 2

CHAPTER 1 – Hot runner design and manufacturing process  
CHAPTER 2 – Performance and cost of hot runner system  
CHAPTER 3 – Hot runner design and part molding  
CHAPTER 4 – Hot runner design and installation  
CHAPTER 5 – Apply hot runner system on the injection at core side  
CHAPTER 6 – Apply hot runner on molding of glossy surface part  
CHAPTER 7 – Apply hot runner system in two shots molding  
CHAPTER 8 – Apply hot runner system in blow molding  
CHAPTER 9 – Apply hot runner system in PVC molding  
CHAPTER 10 – Apply hot runner system in the molding of high flatness part  
CHAPTER 11 – Apply hot runner in the molding of large part  
CHAPTER 12 – Apply hot runner in filling cavity from the side  
CHAPTER 13 – Apply hot runner system in stack mold  
CHAPTER 14 – Apply hot runner system in thick and transparent part with PC

## Mold Structure and Case Analysis

CHAPTER 1  
CHAPTER 2  
CHAPTER 3  
CHAPTER 4  
CHAPTER 5  
CHAPTER 6  
CHAPTER 7  
CHAPTER 8

## Molding Machine Operation

## Quiz

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