SOLIDWORKS Plastics

Course Outline

DURATION / TIME

3 Days
9:00 am - 5:00 pm

METHODOLOGY

Practical hands-on with using computers, lecturing, discussions, and case studies.

PREREQUISITES

Experience with the Windows™ Operating System.
Attended SOLIDWORKS Essentials training.
Knowledge of plastic material, plastic part design and/or injection mold design

TARGET

Application Engineer, R&D Engineer, Product Designer or Engineer, and Industrial Engineer

INTRODUCTION

The SOLIDWORKS Plastics course teaches you how to use specialized simulation software tools to predict how melted plastic flows during the injection molding process. Predicting how the plastic will flow enables you to predict manufacturing defects such as weld lines, air traps, short shots, and sink marks. By predicting these defects, you can change the part or mold geometry, the processing conditions, or the plastic material itself to eliminate or minimize them, saving energy, material, time, and money. The SOLIDWORKS Plastics course covers all the features and functions of both SOLIDWORKS Plastics Professional (for part designers) and SOLIDWORKS Plastics Premium (for mold designers).

OBJECTIVE

At the end of this program participants are expected to:

- Able to use SOLIDWORKS Plastics to analyze plastic flow and predict defects that might occur due to injection molding process.
- Understand when and how to change part or mold geometry, processing conditions and plastic materials.

CONTACT

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SOLIDWORKS Plastics DAY 1

Course Outline:

Lesson 1: Basic Flow Analysis

- Basic Flow Analysis
- Stages in the Process
- New Study
- Injection Process
- Element Types
- Units
- User Interface
- Injection Units
- Material
- Boundary Conditions
- Injection Location
- Create Mesh
- Simulation Type
- Run
- Fill Results

Lesson 2: Detecting a Short Shot

- Detecting Short Shots
- Stages in the Process
- Fill Properties
- Flow Front Central Temperature
- Configurations

Lesson 3: Automation Tools

- Automation Tools
- Stages in the Process
- Duplicate Study
- Plastics File Management
- Batch Manager
- Summary
- Report

Lesson 4: Injection Locations and Sink Marks

- Injection Locations and Sink Marks
- Stages in the process
- Injection Location Rules
- Predict Fill Pattern
- Injection Location Advisor
- Sink Marks
- Visibility Commands

SOLIDWORKS Plastics

DAY 1

Course Outline:

Lesson 5: Materials

- Material Properties
- Stages in the Process
- User-defined Database
- Resin Properties
- Temperature Properties
- Polymer Types
- Thermal Properties
- Rheological Properties
- PVT Data
- Thermo-Mechanical Properties

Lesson 6: Mesh Manipulation

- Mesh Manipulation
- Stages in the Process
- Local Mesh Refinement
- Edit/Review
- Element Issues
- Leader Lines
- Edit Study
- Solid Mesh
- Solid Mesh Size

SOLIDWORKS Plastics

DAY 2

Course Outline:

Lesson 7: Detecting Air Traps

- Detecting Air Traps
- Stages in the Process
- Air Traps
- Venting
- Solver Settings

Lesson 8: Gate Blush

- Gate Blush
- Stages in the Process
- Runner Elements
- Gate Blush

Lesson 9: Packing and Cooling Times

- Packing and Cooling
- Stages in the Process
- Flow/Pack Switch
- Pack Stage
- Pack Analysis
- Pack Results
- X-Y Plot
- Clipping Plane Mode
- Isosurface Mode
- Cooling Times

Lesson 10: Multiple Cavity Molds

- Multiple Cavity Molds
- Stages in the Process
- Model Layouts
- Runner System
- Runner Channel Design
- Clamping Force
- Family Mold Layout
- Using Runner-Balancing

Lesson 11: Symmetry Analysis

- Symmetry Analysis
- Stages in the Process
- Symmetry
- Cyclic Symmetry
- Cyclic

Lesson 12: Valve Gates and Hot Runners

- Valve Gates and Hot Runners
- Stages in the Process
- Hot Runners
- Valve Gates

Lesson 13: Reaction Injection Molding

- Reaction Injection Molding
- Stages in the Process
- Reaction Injection Molding

SOLIDWORKS Plastics DAY 3

Course Outline:

Lesson 14: Using Inserts

- Using Inserts
- Stages in the Process
- Inserts
- Metal Material Database

Lesson 15: Multi Material Overmolding

- Multi Material Overmolding
- Stages in the Process
- Multi Material Overmolding
- Assigning Injection Units

Lesson 16: Co-Injection Molding

- Co-Injection Molding
- Stages in the Process
- Thick Parts

Lesson 17: Bi-injection Molding

- Bi-injection Molding
- Stages in the Process
- Copy and Paste
- Bi-Injection
- Injection Start Value

Lesson 18: Cooling Analysis

- Cooling Analysis
- Stages in the Process
- Cooling
- Cooling Channels and Mold Bodies
- Baffle
- Bubbler
- Cooling Simulations
- Coolant
- Mold
- Cool Parameters
- Cool Analysis
- Cool Results

Lesson 19: Warpage Analysis

- Warpage Analysis
- Stages in the Process
- Shrinkage
- Warpage
- Warp Parameters
- Wrap Results
- Reducing and Fixing Warped Parts