

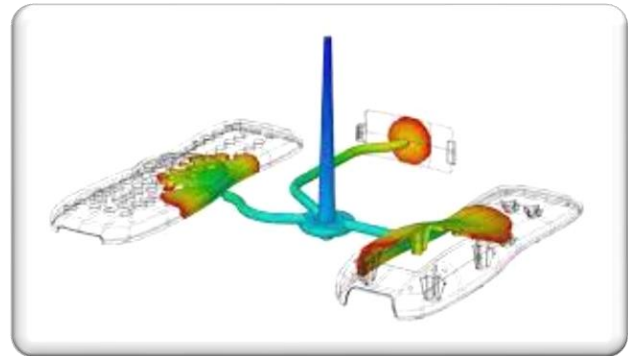


TEMARIO Plastics – 20 HORAS

Lesson 1:

Basic Flow Analysis

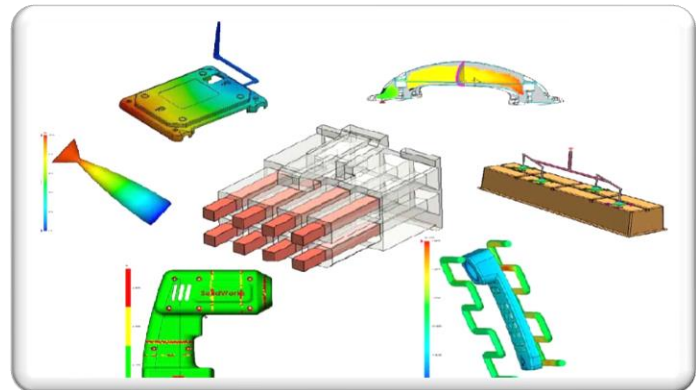
- Basic Flow Analysis
- Stages in the Process
- Units
- Element Types
- Shell Elements
- Solid Elements
- Manual or Automatic
- Meshing
- The PlasticsManager Tree
- Material
- Polymer
- Using the Databases
- Machines
- Injection Location
- Running a Flow Analysis
- Flow
- Pack
- Warp
- Cool
- Flow Results
- Fill Time
- Weld Lines
- Results Adviser
- Exercise 1: Basic Flow Analysis




Lesson 2:

Detecting a Short Shot

- Detecting Short Shots
- Stages in the Process
- Fill Settings
- Definition Fill Setting Parameters
- Filling Time and Injection Pressure Considerations
- Report Text File
- Flow Front Central Temperature
- Pressure at End of Fill
- Design Changes
- Plastics to Modeling
- Modeling to Plastics
- Thickness Change
- Simulations After Design Changes
- Exercise 2: Short Shots



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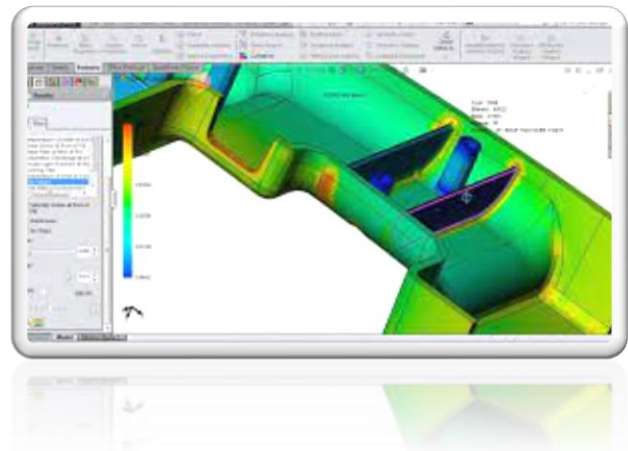
Lesson 3:
Automation Tools

Automation Tools
Stages in the Process
Duplicate Study
Copying Settings

Plastics File Management
Batch Manager
Batch Controls
Summary and Report
Exercise 3: Design Changes

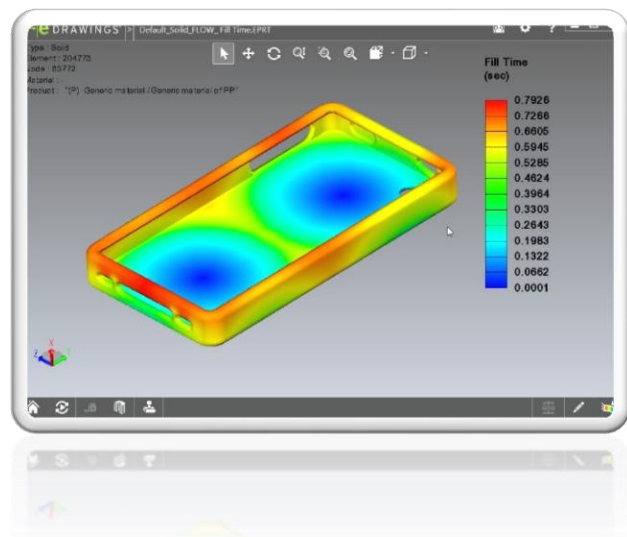
Lesson 4:
Injection Locations and Sink Marks

Injection Locations and Sink Marks
Stages in the Process
Injection Location Rules
Positioning the Injection Location
Single vs. Multiple Injection Locations
Modeling for Injection Locations
Automatic Injection Location Selection
Predict Flow Pattern
Sink Marks
Measure
Minimizing Sink Marks in Ribs
Nominal Wall Thickness Advisor
Exercise 4: Minimizing Sink Marks (1)
Exercise 5: Minimizing Sink Marks (2)




Lesson 5:
Materials

Material Properties
Stages in the Process
User-defined Database
Material
Resin Properties
Temperature Properties
Melt Temperature
Mold Temperature
Part Ejection Temperature
Glass Transition Temperature
Heat Transfer Properties
Specific Heat
Thermal Conductivity
Viscosity
PVT Data
Mechanical Properties
Thermal Expansion Coefficient
Elastic Modulus
Poisson's Ratio



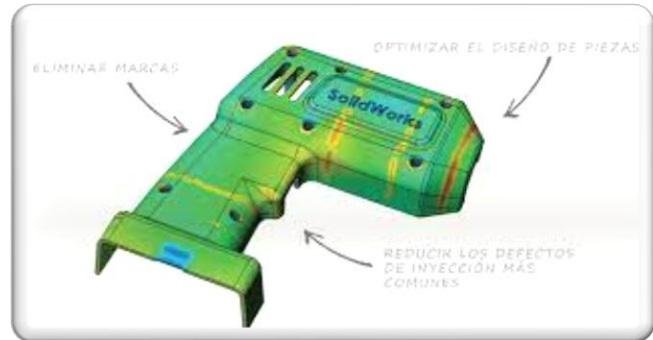
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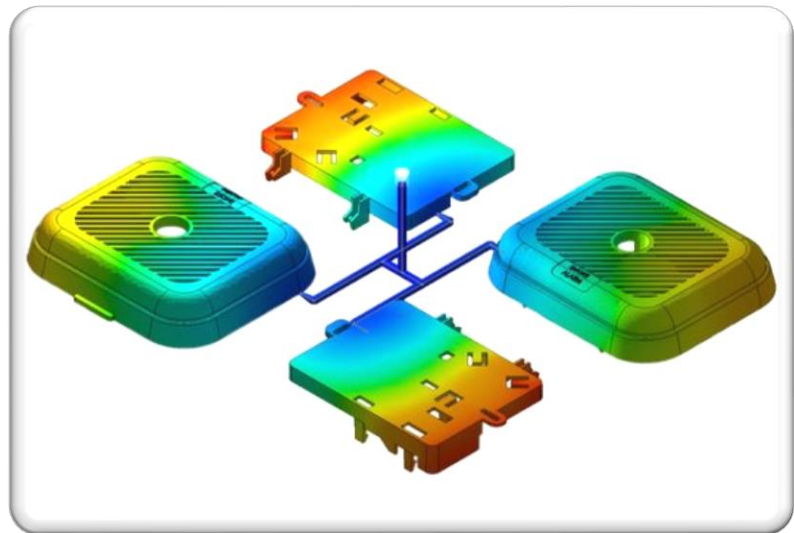
**Lesson 6:
Mesh Manipulation**

- Mesh Manipulation
- Stages in the Process
- Local Refinement of Mesh
- Mesh Density
- Gradation
- Element Issues
- Mesh Editing
- Mesh
- Mesh Analysis
- Mesh Triangles
- Mesh Nodes
- Leader Lines
- Solid Mesh
- Solid and Shell Mesh
- Solid Mesh Types
- Tetrahedral Elements
- Hexahedral Elements
- Exercise 6: Mesh Repairs



**Lesson 7:
Detecting Air Traps**

- Detecting Air Traps
- Stages in the Process
- Air Traps
- Dieseling Effect
- Plot Ranges
- Thickness Analysis
- Venting
- Venting Analysis
- Venting Locations
- Exercise 7: Air Traps




**Lesson 8:
Gate Blush**

- Gate Blush
- Stages in the Process
- Runner Elements
- Domains
- Gate Blush
- Shear Stress
- Reducing Gate Blush

**Lesson 9:
Packing and Cooling Times**

- Packing and Cooling
- Stages in the Process
- Flow/Pack Switch
- Pack Stage
- Pack Settings
- Pack Analysis

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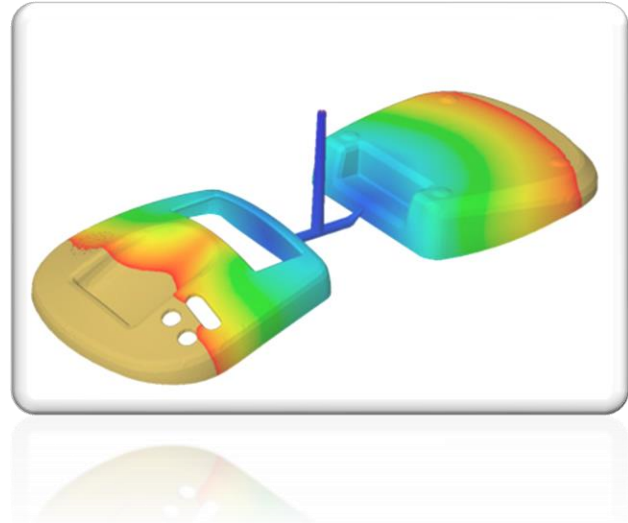
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Pack Results
X-Y Plot
Volumetric Shrinkage at End of Packing
Cooling Times
Temperature at Post-Filling End
Nodal Temperature
Exercise 8: Packing and Cooling Times

**Lesson 10:
Reducing Cooling Times**

Reducing Cooling Time
Stages in the Process
Multiple Injection Locations
Clipping Plane Mode
Jetting
Exercise 9: Optimizing Cooling Time



**Lesson 11:
Multiple Cavity Molds**

Multiple Cavity Molds
Stages in the Process
Mold Layouts
Channel Design
Runner Channel Design
Runner Types
Element Count
Searching for Polymers
Runner Wizard Channel Design
Family Mold Layout
Using Runner-Balancing
Exercise 10: Multiple Cavity Molds
Exercise 11: Runner-Balancing

**Lesson 12:
Symmetry Analysis**


Symmetry Analysis
Stages in the Process
Case Study1
Case Study2
Symmetry Face

**Lesson 13:
Valve Gates and Hot Runners**

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



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Lesson 14:
Reaction Injection Molding

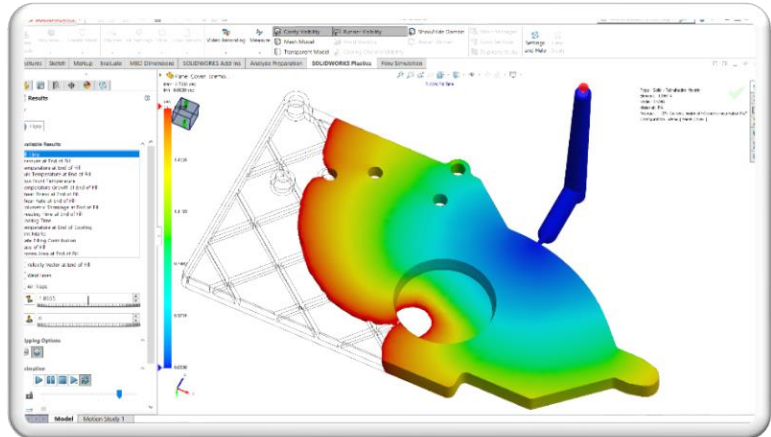
Reaction Injection Molding
Stages in the Process
Reaction Injection Molding

Lesson 15:
Using Inserts

Using Inserts
Stages in the Process
Cavities and Inserts
Materials for Inserts
Insert Settings
Hiding Cavities and Inserts

Lesson 16:
Multi Shot Mold

Multi Shot Mold
Stages in the Process
Multi Shot Mold
Domain Order

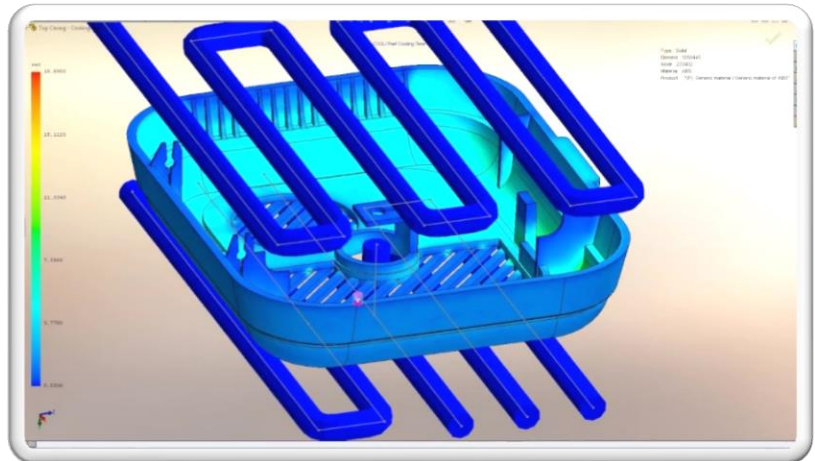


Lesson 17:
Gas Assistance Molding


Using Inserts
Stages in the Process
Gas Assist
Material Selection

Lesson 18:
Cooling Analysis

Cooling Analysis
Stages in the Process
Cooling
Cooling Channels and Mold Bodies
Coolant
Mold
Cool Settings
Cooling Simulations
Cool Flow Field
Cool Pipe
Coolant Entrance
Mold Wall Temperature
Cool Analysis
Cool
Cool Results
Baffle
Bubbler
Exercise 12: Cooling Analysis



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Lesson 19: Warpage Analysis

Warpage Analysis

Stages in the Process

Shrinkage

Reducing Shrinkage

Warpage

Warp Settings

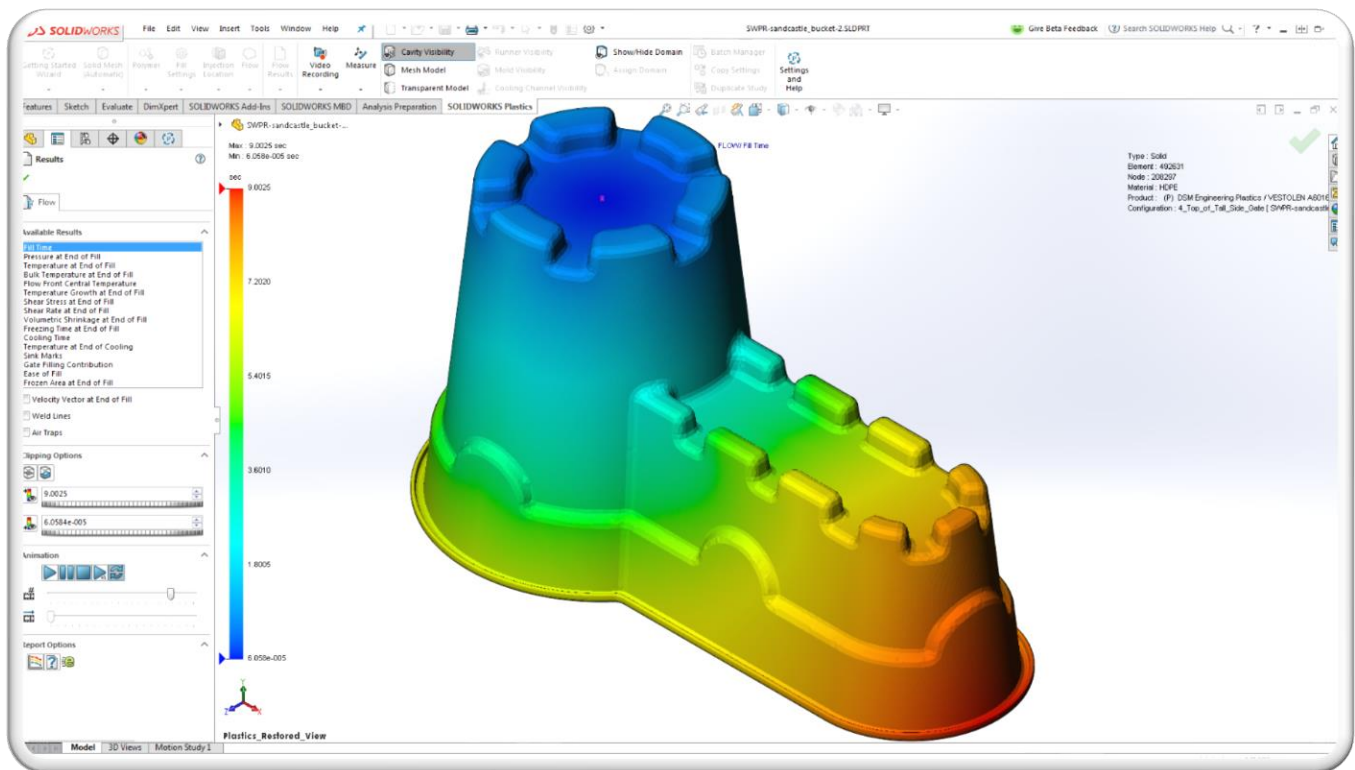
Warp Results

Reducing and Fixing Warped Parts


Thermal Contributions to Warping

Typical Warp Shapes

Residual Stress



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