



Le matériel didactique est disponible seulement en anglais mais le formateur donnera la matière en français.

## Lesson 1

### Surface Concepts and Imported Geometry

- Course Overview
- Hide/Show Tree Items
- Accessing Commands
- Importing Data
- 3D Model Types
  - Wireframe Models
  - Surface Models
  - Solid Models
- Definitions
  - Geometry vs. Topology
  - What is a Solid?
  - Euler's Formula
  - Behind the Scenes
- Case Study: Solids vs. Surface
  - Extruded Surface
  - Planar Surface
  - Trim Surface
  - Untrim Surface
  - Face Curves and Mesh P Four-Sided Surfaces ...
  - Knit Surface
  - Gap Control
- Creating Solids from Surface
  - Thicken
  - Create Solid
  - Summary
- Decomposing a Solid into Si
  - Delete Face
- Additional Surface Concepts
  - Edges vs. Holes
  - Surface Types
- Importing and Mold Design
  - Modeling Kernels
  - Contents of a CAD File
  - File Formats
  - Formal Recommendations
- File Translation
- Why Do Imports Fail?



- SOLIDWORKS Import Options
  - 3D Interconnect for Native File Formats
  - 3D Interconnect for Neutral File Formats
- Case Study: Importing a STEP File
  - Import Diagnostics
  - Accessing Import Options
- Comparing Geometry
- Addressing Translation Errors
- Case Study: Repairing and Editing Imported Geometry
  - Check Entity
  - Display Curvature
  - Patching Strategies
  - Filled Surface
  - Another Strategy
- Procedure for Rebuilding Fillets
  - Making Copies of Faces
  - Offset Surface
  - Extend Surface
  - Editing Imported Parts
  - Delete Hole
- Exercise 1 : Import Diagnosis
- Exercise 2: Using Import Surface and Replace Face

## **Lesson 2**

### **Core and Cavity**

- Core and Cavity Mold Design
  - Steps in the Mold Design Process
  - Summary of Steps
- SOLIDWORKS Mold Tools
- Case Study: Camera Body
- Mold Analysis Tools
  - GPU-based Processing
- Analyzing Draft on a Model
  - What is Draft?
  - Determining the Direction of Pull
- Using the Draft Analysis Tool
  - Positive and Negative Draft
  - Requires Draft
- Draft Analysis Options
  - Gradual Transition
  - Face Classification
  - Find Steep Faces



- Adding Draft
- Scaling the Model
- Establish the Parting Lines
  - Parting Lines Options
  - Manual Parting Lines
- Shut-Off Surfaces
  - Shut-off Surface Patch Types
  - Manual Shut-off Surfaces
- Creating the Parting Surface
  - Parting Surfaces Options
  - Smoothing the Parting Surface
- Surface Bodies
- Creating the Mold Tooling
  - Tooling Split
- Seeing Inside the Mold
- Interlocking the Mold Tooling
  - Creating Interlock Surfaces
- Creating Part and Assembly Files
  - Completing the Mold
- Exercise 3: Casting
- Exercise 4: Ribbed Part
- Exercise 5: Dustpan

### **Lesson 3**

#### **Side Cores and Pins**

- Additional Mold Tooling
  - Additional Tooling Design Process
- Case Study: Power Saw Housing
  - Thickness Analysis
  - Detecting Undercuts
  - Undercut Analysis
- Trapped Molding Areas
- Side Cores
  - Core Feature
- Feature Freeze
- Lifters
- Core Pins
- Manual Selection Techniques
  - Selection Tools
  - The Message Pane
- Case Study: Mixer Base
- Modifying Shut-Off Surfaces



Manual Shut-Off Surfaces  
Manually Selecting Loops  
Completing the Tooling  
Exercise 6: Towing Mirror  
Exercise 7: Completing the Mixer Base Exercise 8: Electrode Design  
Exercise 8: Electrode Design

#### **Lesson 4**

##### **Advanced Parting Line Options**

Case Study: Manual Parting Line  
Using Split Faces  
Using Entities to Split  
Case Study: Splitting a Part  
Creating Ruled Surfaces  
Exercise 9: Peeler

#### **Lesson 5**

##### **Creating Custom Surfaces for Mold Design**

Surface Modeling for Mold Design ...  
Case Study: Drill Bezel  
Manual Interlock Surfaces  
Using Select Partial Loop  
Ruled Surface Direction  
Problem Areas  
Creating the Parting Surface  
Organizing Surfaces  
Case Study: Router Bottom  
Manual Parting Surface Techniques... Organizing Manual Shut-off Surfaces  
Copying Surfaces  
Exercise 10: Power Strip  
Exercise 11: Router Top

#### **Lesson 6**

##### **Advanced Surfacing for Mold Design**

Surface Modeling for Mold Design  
The Mixer  
Case Study: Mixer Rear Housing  
Manual Parting Surface  
Insert Mold Folders  
Case Study: Mixer Handle  
Manual Shut-off Surfaces  
No Fill Shut-off Surfaces



Manual Side Cores  
Exercise 12: Mixer Switch  
Exercise 13: Fan Bezel

## Lesson 7

### Alternative Methods for Mold Design

Alternate Methods for Mold Design  
When to use Alternate Methods  
Case Study: Using Combine and Split  
Copying Bodies in Place  
Creating a Cavity  
Case Study: Cavity  
Case Study: Using Surfaces  
Techniques for Mold Tooling  
Using the Up To Surface Method  
Using the Split Method  
Exercise 14: Handle  
Exercise 15: Filter

## Lesson 8

### Reusable Data

Reusing Data  
Library Features  
Smart Components  
3D ContentCentral  
Task Pane  
SOLIDWORKS Resources  
Design Library  
Essentials of Using the Design Library  
Folder Graphics  
Main Directory Structure  
File Explorer  
Case Study: 3D ContentCentral  
Library Features  
Two Techniques for Locating  
Case Study: Create A Library Feature  
Library Feature Characteristics  
Organizing Library Feature Part Dimensions.  
Replacing Dimensions  
Renaming Dimensions  
Sorting Dimensions  
Configurations in Library Features  
Case Study: Water Line



- Creating Library Features from Existing Parts
- Smart Components
- Create the Defining Assembly
- Make Smart Component
- Inserting the Smart Component
- Inserting Smart Features
- Exercise 16: Smart Components
- Exercise 17: Complete Mold Insert Project
  - Developing a Plan
  - Modeling Repairs
  - Runners and Gates
  - Side Cores
  - Ejector Pins
  - Core Pins
  - Creating Individual Parts

## **Lesson 9**

### **Completing the Mold Base**

- Case Study: Mold Base
- Organizing the Assembly
  - Assembly Structure Editing
- Modifying the Lifters
- Lifter Motion
- Ejector Pins
  - Adding the Bezel
- Cooling the Mold
- Making the Drawing
- Making Changes
- Completing the Process