

## PolyWorks | Inspector™ Premium + PolyWorks | Modeler™ Standard Training Course



### Introduction to PolyWorks

- Workspace Manager
- Basic Options
- File and Project Structures
- IMKey License Manager

### Introduction to IMInspect

- User Interface
- Basic Options
- Visual Layout

### Real-Time Quality Meshing

- Scanning Parameters
- Quality Metrics
- Unifying models using Targets and Best Fit

### Basic Workflow

- Importing References & Data
- Basic Alignments
- Basic Colour Map Comparison
- Creating Report Tables
- Taking Snapshot
- Create Formatted Report

### Units

- Importing objects with different units

### Scaling

- Scaling models using "Units Conversion"

### CAD Based-Clean-Up

- Quick removal of noise and over scans

## **Tolerances**

- Applying tolerances to CAD surfaces

## **Feature Creation**

- Creating Nominals from CAD or Polygonal models
- Creating Measured from Polygonal or Point Cloud models

## **Feature Extraction**

- Setting up feature properties to extract the measured from the nominals

## **Geometry Controls**

- Dimensional Controls
- Geometric Dimensioning & Tolerancing (GD&T) Controls
- Editing Annotations
- Templates

## **Feature Based Alignments and Alignment History**

- Planes, Axes, Center Point (3-2-1)
- Center Points
- Perpendicular Planes
- Datum Reference Frame Alignment
- Using Alignment Groups and reverting back to previous alignments

## **Reference Targets Alignment**

- Creating Surface and Feature Reference Targets

## **Data Colour Maps and Point Annotations**

- Displaying the Deviation between the Data and Reference Objects, Feature Primitives or other Data
- Customizing the Colour map and Enhanced Colouring
- Picking points on model for error annotation readings

## **Cross-Sections**

- Creating Standard, Offset and Section View Cross-Sections

## **Comparison Points and Virtual Surfaces**

- Creating Comparison Points on Surfaces, Cross-Sections, Polylines, Trimmed Edges and Hemmed Edges
- Enabling and using Virtual Surfaces

## **Basic Measurements and Feature Based Measurements**

- Picking on 3D or 2D points to measure between
- Measuring distances or angles between 2 features
- Measuring 2D Cross-Section Features

## **3D and 2D Calipers**

- Creating Standard and Cross-Section Calipers
- Single Axis or Offset Axes (depth gauge)

## **Flush & Gap Gauges**

- Measured between 2 models
- Alignment using Flush & Gap Gauges

## **Profile Gauges**

- One or Two radii measurements

### **Volume Measurements**

- Measuring Data or Plane or Data to Data

### **Coordinate Systems**

- Creating and managing Coordinate Systems

### **Reporting**

- Taking and editing Snapshots
- Creating Formatted Reports and using Report Editor

### **Automatic Updates**

- Enabling/Disabling and its functionality
- Editing Measured Data Points

### **Multiple Piece Inspection**

- Multiple inspections in one project
- Statistical Process Control (SPC)

### **Surface Data SPC and creating Deviation Models**

- Deviation Colour Map of Multiple Data Models
- Creating Deviation Models as Point Clouds or Polygon Models

### **Offline Simulation & Sequencer**

- How to create complete inspection programs offline with device or parts
- How to rearrange the sequence or measurements and further programming of inspection projects

### **PolyWorks | Viewer**

- Free Project Viewer

### **Additional Airfoil Gauge Module**

#### **RPS 6 Point Nest Alignment**

- Used to align Airfoil Blades

#### **Airfoil Gauges**

- Creating Airfoil gauges and Best Fit and Cross sections

## **Introduction to IEdit**

- User Interface, Basic Options and Typical Workflow

## **Importing Models**

- Importing Polygonal and CAD models

## **Units**

- Importing objects with different units

## **Scaling**

- Scaling models using “Units Conversion”

## **Creating Primitives**

- Creating Planes and Points Primitives

## **Alignment Techniques**

- Manual Alignment
- Rotate Plane A to Plane
- Translate to Plane

## **Creating Features and Advanced Alignment Techniques using IMInspect Scanning and Probing**

- Fitting and Probing Features
- Feature based Alignments

## **Model Topology and Watertightness**

- Analysing Polygonal for Triangular & Vertices errors
- Analysing Polygonal model for holes

## **Optimising Polygonal Meshes**

- Optimise Mesh
- Improve Equiangularity
- Subdivide Mesh
- Reduce Mesh

## **Hole Filling**

- Automatically, Interactively, using Surfaces and Merging Models

## **Smoothing Meshes**

- A tool that smooths Vertices along surfaces

## **Reconstructing Meshes**

- A tool that deletes selected triangles and reconstructs them

## **Creating and Editing Curves**

- Standard Curves
- Boundary Curves
- Feature Center Curves
- Fillet Tangent Curves
- Edge Curves

## **Boundary and Sharp Edge Reconstruction**

- Reconstructing triangles by using Curves

### **Creating Fillets, extending boundaries and slicing models**

- Creating Fillet rads
- Extruding boundary surface
- Slicing Models with Planes and Curves

### **Importing Objects from other Projects**

- Importing objects such as Models, Features, Cross-Sections etc from other Projects such as IMInspect Projects etc

### **Creating Cross-Sections**

- Create Cross-Sections by Anchoring 2 points or Numerically

### **Hole Cutting**

- Using closed Curves or Features from IMInspect Projects

### **Offset Models**

- Offset selected triangles in a selected direction with the option of keeping the original or even creating walls around the boundaries

### **Mirror Models**

- Mirror selected triangles about a standard or created plane

### **Extracting Sketch Outlines**

- Defining Sketch Planes and creating Sketch Outlines from either a Single Cross-Section, Multiple Cross-Sections or a Silhouette Edge

### **Measuring Draft Angles**

- Measuring from 2 points and Inward vs Outward Draft Angles

### **Creating Sketch Entities**

- Creating Lines, Circles, Arcs, Splines and Rectangles
- View Auto-Relations and Entity Deviations

### **Editing Sketch Entities**

- Modifying entities numerically, adding relations, dragging entities, replacing entities, rebuilding entities and deleting entities

### **Adding Dimensions**

- Linear Dimensions
- Angular Dimensions
- Radial Dimensions