



#### INTRODUCTION TO POLYWORKS

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

#### INTRODUCTION TO POLYWORKS | INSPECTOR

- User Interface
- Basic Options
- Visual Layout

#### REAL-TIME QUALITY MESHING

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

#### BASIC WORKFLOW

- Probing Features
- Probing Point Clouds
- Creating Report Tables
- Taking Snapshot
- Create Formatted Report

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#### MANAGING REFERENCE AND DATA OBJECTS

- Importing References
- Managing Reference Objects
- CAD Tolerances

#### FEATURE CREATION

- Creating Nominals from CAD or Polygonal Models
- Creating Measured by Probing
- 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
- Control Templates

#### FEATURE BASED MEASUREMENTS, ADDITIONAL FEATURES AND ANNOTATIONS

- Distance & Angle Features
- Surface, Patterns and Slab Features
- Displaying and Editing Annotations

#### FEATURE BASED AND DATUM REFERENCE FRAME ALIGNMENTS

- Planes, Axes, Center Point (3-2-1)
- Best-Fit Measurement Objects
- Perpendicular Planes
- Datum Reference Frame Alignment
- Using Alignment Groups and reverting to previous alignments

#### REFERENCE TARGETS ALIGNMENTS

- Creating and aligning using Surface Reference Target Points
- Creating and aligning using Feature Reference Target Points



#### DATA COLOUR MAPS AND POINT ANNOTATIONS

- Displaying 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 and viewing Standard Cross-Sections
- Creating and viewing Offset Cross-Sections
- Creating and viewing Section View Cross-Sections

#### COMPARISON POINTS

- Creating Surface Comparison Points
- Creating Trimmed and Hemmed Edge Comparison Points
- Creating Cross-Sectional and Polyline Comparison Points

#### 3D AND 2D CALIPERS

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

#### COORDINATE SYSTEMS

- Creating and managing Coordinate Systems

#### REPORTING

- Control Reviewer
- Creating Report Items: Snapshots, Tables and Additional Report Items
- Creating and Compiling Formatted Reports

#### MULTIPLE PIECE INSPECTION

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

#### POLYWORKS | REVIEWER

- Free Project Viewer

**\*\*\* ADDITIONAL MEASUREMENT TOPICS \*\*\*****OFFLINE SIMULATION & SEQUENCE EDITOR**

- How to create complete inspection programs offline without a device or parts
- How to rearrange the sequence or measurements and further programming of inspection projects

**NEW PIECE TEMPLATES**

- Creating and Managing New Piece Templates

**BASIC, 2D FEATURE AND CUSTOM MEASUREMENTS**

- Picking on 3D or 2D points to measure between
- Measuring 2D Cross-Sections Features
- Creating Custom Numerical or Quantitative Measurements

**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

**SURFACE DATA SPC AND CREATING DEVIATION MODELS**

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



**\*\*\* ADDITIONAL AIRFOIL GAUGE MODULE \*\*\*****ALIGNING AIRFOIL BLADES**

- 6 Point Nest
- Datum Reference Frame Alignment

**AIRFOIL GAUGES**

- Creating Airfoil gauges and Best Fit and Cross sections

**INTRODUCTION TO POLYWORKS | MODELER**

- User Interface
- Basic Options
- Importing Polygonal and CAD models
- Units and Scaling models

**MODEL TOPOLOGY AND WATERTIGHTNESS**

- Analysing Polygonal models or Triangular & Vertices errors
- Analysing Polygonal models for holes

**OPTIMISING POLYGONAL MESHES**

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

**HOLE FILLING**

- Automatically and Interactively hole filling
- Filling holes 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

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#### CREATING AND EDITING CURVES

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

#### BOUNDARY AND SHARP EDGE RECONSTRUCTION

- Reconstructing triangles up to 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 PolyWorks | Inspector Projects etc

#### HOLE CUTTING

- Importing Features from PolyWorks | Inspector Projects
- Using closed Curves or Features from PolyWorks | Inspector 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

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#### 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

#### CREATING CURVES NETWORKS

- Creating a grid of curves to create typically 4 sided patches

#### CREATING AND EDITING NURBS SURFACE PATCHES

- Creating smooth typically 4 sided surfaces
- Creating N-Sided Surface Patches
- Edit the Curves to modify and improve quality of NURBS patches

#### FITTING NURBS SURFACE PATCHES

- Fit the NURBS patches to the surface of the Polygonal model
- Loose and flexible fitting NURBS fit closer to the Polygonal model but may have lower quality surfaces
- Tight and stiff fitting NURBS have higher quality surfaces by may not fit as well

#### CUTTING HOLES THROUGH NURBS MODELS

- Importing Features from PolyWorks | Inspector Projects
- Using closed Curves or Features from PolyWorks | Inspector Projects



#### PLANAR AND SYMMETRY CONSTRAINTS

- NURBS patches and Curves can be projected and constrained to Planes for planar/symmetrical surfaces

#### CAD RECONSTRUCTION

- Creating NURBS Patches from Scan Data to reconstruct original CAD Models

#### ALTERNATIVE SERVICING PROCESSES

- Measuring features to export into original 3D CAD Packages as surfaces to reverse engineer
- Simplifying Curve Networks on flat surface and complex networks

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