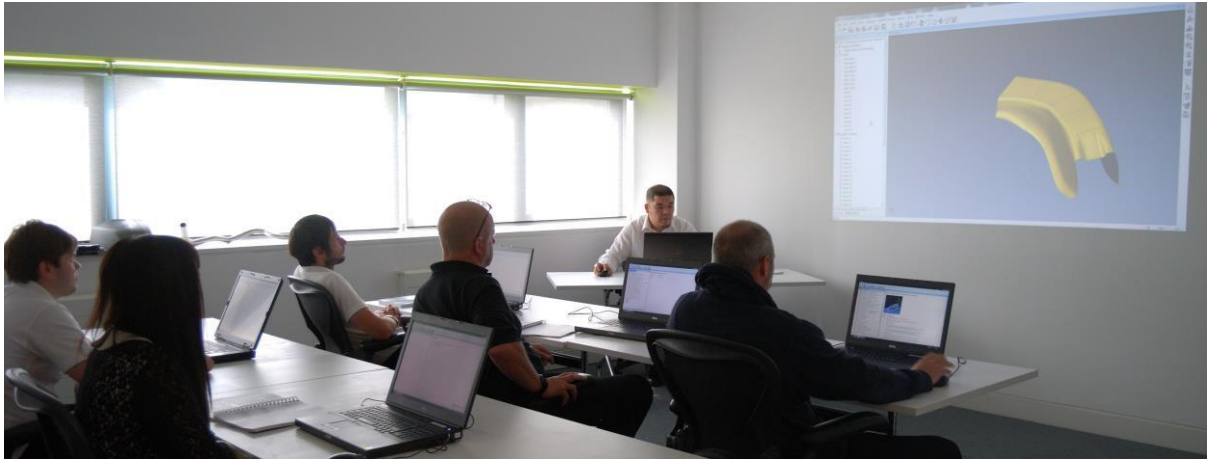# PolyWorks|Modeler™ Premium Training Course

Introduction to PolyWorks
- Workspace Manager
- Basic Options
- File and Project Structures
- IMKey License Manager

Introduction to IMInspect Scanning & Probing
- User Interface
- Basic Options
- Visual Layout

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

Creating Features and Advanced Alignment Techniques using IMInspect Scanning and Probing
- Fitting and Probing Features
- Feature based Alignments

Introduction to IMEdit
- 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

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

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 we well

Cutting Holes Through NURBS Models
- Importing Features from IMInspect
- Scanning and Probing project to cut holes

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
- Breaking scans into smaller & simpler models
- Simplifying curve networks