

## Course Content

### Module 1. Advanced Selection

- i. Advanced Chain Selection
- ii. Advanced Surface Selection
- iii. Using the Search Tool

### Module 2. Advanced Datum Features

- i. Creating Datum Graphs
- ii. Creating Datum Coordinate Systems
- iii. Creating Points On or Offset from Entities
- iv. Creating Points at Intersections
- v. Creating Points using an Offset Coordinate System
- vi. Sketching Geometry Datums
- vii. Creating Curves Through a Point or Vertex
- viii. Creating a Curve Through a Point Array
- ix. Creating a Curve from a Cross-Section
- x. Creating a Curve From Equation
- xi. Creating Composite Curves
- xii. Creating a Curve from Curve Intersections
- xiii. Creating a Curve at Surface Intersection
- xiv. Projecting and Wrapping Curves
- xv. Trimming Curves
- xvi. Creating Offset Curves
- xvii. Creating Cosmetic Sketches

### Module 3. Advanced Sketching

- i. Using Sketched Curves
  - ii. Sketching Ellipses
  - iii. Sketching Elliptical Fillets
  - iv. Sketching Splines
  - v. Modifying Splines — Basic Operations
  - vi. Modifying Splines — Advanced Operations
  - vii. Importing and Exporting Spline Points
  - viii. Sketching Conics
  - ix. Sketching Text
  - x. Thickening Edges
  - xi. Analyzing Sketcher Convert Options
  - xii. Locking Sketcher Entities
  - xiii. Analyzing Sketcher Dimension Options
  - xiv. Sketcher Diagnostic Tools
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**Module 4. Advanced Hole Creation**

- i. Creating Standard Holes
- ii. Lightweight Hole Display
- iii. Creating Sketched Holes
- iv. Creating On Point Holes
- v. Using the Top Clearance Option
- vi. Creating Cosmetic Threads

**Module 5. Advanced Drafts and Ribs**

- i. Drafting Intent Surfaces
- ii. Analyzing Draft Hinges and Pull Direction
- iii. Creating Drafts with Multiple Angles
- iv. Using the Extend Intersect Surfaces Draft Option
- v. Creating Drafts Split at Sketch
- vi. Creating Drafts Split at Curve
- vii. Creating Drafts Split at Surface
- viii. Creating Drafts with Variable Pull Direction
- ix. Using the Exclude Areas with Draft Option
- x. Creating Trajectory Ribs

**Module 6. Advanced Shells**

- i. Analyzing Shell References and Thickness Options
- ii. Excluding Surfaces from Shells
- iii. Extending Shell Surfaces
- iv. Analyzing Shell Corner Options

**Module 7. Advanced Rounds and Chamfers**

- i. Analyzing Round Profile
  - ii. Analyzing Round Creation Methods
  - iii. Creating Rounds Through Curve
  - iv. Creating Variable Radius Rounds
  - v. Auto Round
  - vi. Creating Rounds by Reference
  - vii. Analyzing Round References and Pieces
  - viii. Using Intent Edges for Rounds
  - ix. Using Round Transitions
  - x. Creating Constant Width Rounds
  - xi. Analyzing Additional Chamfer Types
  - xii. Analyzing Advanced Chamfer Dimensioning Schemes
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- xiii. Analyzing Chamfer Creation Methods
- xiv. Creating Corner Chamfers
- xv. Creating Chamfers by Reference
- xvi. Analyzing Chamfer References and Pieces
- xvii. Using Intent Edges for Chamfers
- xviii. Using Chamfer Transitions

#### **Module 8. Relations and Parameters**

- i. Understanding Relation Theory
- ii. Understanding Relation Types
- iii. Understanding Basic Relation Operators and Functions
- iv. Understanding Advanced Relation Operators and Functions
- v. Exact Relation
- vi. Creating Parameters
- vii. Understanding Advanced Parameter Options
- viii. Creating Relations
- ix. Creating Relations for Patterns
- x. Creating Section Relations
- xi. Using the Evalgraph Function
- xii. Using Simultaneous Equations

#### **Module 9. Advanced Blends**

- i. Creating Blends by Selecting Non-Parallel Sections
- ii. Analyzing Blend Section Tools
- iii. Analyzing Blend Tangency
- iv. Creating Rotational Blends by Selecting Sections
- v. Creating Rotational Blends by Sketching Sections
- vi. Analyzing Rotational Blend Options
- vii. Analyzing Rotational Blend Tangency

#### **Module 10. Sweeps with Variable Sections**

- i. Understanding Sweeps with Variable Sections Theory
  - ii. Creating Sweeps using a Constant Section
  - iii. Creating Sweeps Normal to Trajectory
  - iv. Creating Sweeps Using Constant Normal Direction
  - v. Creating Sweeps with Variable Sections Normal to Projection
  - vi. Analyzing Horizontal and Vertical Control in Sweeps
  - vii. Creating Sweeps with Variable Sections Utilizing Multiple Trajectories
  - viii. Creating Sweeps with Variable Sections Using Tangent Trajectories
  - ix. Analyzing Sweeps with Variable Sections Trajectory Options and Rules
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- x. Using Trajpar with Solid Features
- xi. Using Trajpar and Datum Graphs with Solid Features

**Module 11. Helical Sweeps**

- i. Understanding Helical Sweeps Theory
- ii. Creating Helical Sweeps for Springs
- iii. Creating Helical Sweeps for Threads
- iv. Analyzing Helical Sweep Profile and Pitch Variations
- v. Utilizing Variable Sections in Helical Sweeps

**Module 12. Swept Blends and Advanced Bends**

- i. Understanding Swept Blend Theory
- ii. Creating Swept Blends by Selecting Sections
- iii. Creating Swept Blends by Sketching Sections
- iv. Analyzing Swept Blend Section Options
- v. Analyzing Swept Blend Section Plane Control
- vi. Analyzing Horizontal and Vertical Control in a Swept Blend
- vii. Analyzing Swept Blend Tangency
- viii. Analyzing Swept Blend Options
- ix. Analyzing Swept Blend Rules
- x. Creating Spinal Bends
- xi. Creating Toroidal Bends

**Module 13. Advanced Layers**

- i. Understanding Layers
- ii. Creating and Managing Layers
- iii. Creating Layer States
- iv. Creating Layer Rules
- v. Creating Layers in Assemblies

**Module 14. Advanced Reference Management**

- i. Editing Feature References
- ii. Replacing Feature References
- iii. Displaying Missing References
- iv. Replacing Sketcher References
- v. Replacing Sketcher Geometry

**Module 15. Family Tables**

- i. Understanding Family Table Theory
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- ii. Creating a Family Table
- iii. Patternizing Family Table Instances
- iv. Creating a Multi-Level Family Table
- v. Editing Family Table Members

#### **Module 16. Reusing Features**

- i. Creating UDFs
- ii. Placing UDFs
- iii. Creating UDFs Using On-Surface Coordinate Systems
- iv. Creating Inheritance Features
- v. Using External Merge to Add Material
- vi. Using External Merge to Remove Material

#### **Module 17. Advanced Copy**

- i. Configuring Independency
- ii. Analyzing Advanced Reference Configuration
- iii. Copying Features Fully Dependent with Options to Vary

#### **Module 18. Advanced Patterns**

- i. Understanding Pattern Regeneration Options
  - ii. Creating Dimension Patterns in One Direction
  - iii. Creating Dimension Patterns in Two Directions
  - iv. Creating Rotational Dimension Patterns
  - v. Creating Geometry Patterns
  - vi. Creating Fill Patterns
  - vii. Specifying Fill Pattern Settings
  - viii. Creating Pattern Tables
  - ix. Applying Pattern Tables
  - x. Creating Curve Patterns
  - xi. Creating Point Patterns
  - xii. Unpatterning Group Patterns
  - xiii. Creating Patterns of Patterns
  - xiv. Moving/Mirroring Patterns
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