Course Content

Module 1. Surface Modeling Overview

i. Introduction to Surfacing
ii. Surface Modeling Uses
iii. Surface Modeling Paradigms
iv. Blending Surface Modeling Paradigms
v. Surfacing Terms

Knowledge Check Questions

Module 2. Advanced Selection

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

Knowledge Check Questions

Module 3. 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

Knowledge Check Questions

Module 4. 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

Knowledge Check Questions

Module 5. Basic Surfacing Tools

i. Creating Surface Extrude Features
ii. Creating Surface Revolve Features
iii. Creating Fill Surfaces
iv. Creating Sweep Surfaces with Open Trajectories
v. Creating Sweep Surfaces with Closed Trajectories
vi. Creating Blend Surfaces by Selecting Parallel Sections
vii. Creating Blend Surfaces by Selecting Non-Parallel Sections
viii. Creating Blend Surfaces by Sketching Sections
ix. Analyzing Blend Surface Section Tools
x. Analyzing Blend Surface Options
xi. Analyzing Blend Surface Tangency
xii. Creating Rotational Blend Surfaces by Selecting Sections
xiii. Creating Rotational Blend Surfaces by Sketching Sections
xiv. Analyzing Rotational Blend Surface Options
xv. Analyzing Rotational Blend Surface Tangency

Knowledge Check Questions

Module 6. Boundary Blend Surfaces

i. Understanding Boundary Curve Concepts
ii. Creating Boundary Blends in One Direction
iii. Creating Boundary Blends in Two Directions
iv. Analyzing Blended Surface Boundary Conditions
v. Analyzing Blended Surface Constraint Options
vi. Analyzing Blended Surface Control Points
vii. Creating Boundary Blends with Influencing Curves
viii. Analyzing Approximate Blended Surface Options
ix. Creating a Blend Tangent to Surfaces

Knowledge Check Questions

Module 7. Sweep Surfaces with Variable Sections

i. Understanding Sweeps with Variable Sections
ii. Creating Sweep Surfaces using a Constant Section

iii. Creating Sweep Surfaces using Normal to Trajectory
iv. Creating Sweep Surfaces using Constant Normal Direction
v. Creating Sweep Surfaces using Normal to Projection
vi. Analyzing Horizontal and Vertical Control in a Sweep Surface
vii. Creating Sweep Surfaces Utilizing Multiple Trajectories
viii. Creating Sweep Surfaces using Tangent Trajectories
ix. Analyzing Sweep Surface Trajectory Options and Rules
x. Using Trajpar with Sweep Surface Features
xi. Using Trajpar and Datum Graphs with Sweep Surface Features

Knowledge Check Questions

Module 8. Helical Sweeps

i. Understanding Helical Sweeps Theory
ii. Utilizing Helical Sweeps for Surfaces
iii. Analyzing Helical Sweep Surface Profile and Pitch Variations
iv. Utilizing Variable Sections in Helical Sweep Surfaces

Knowledge Check Questions

Module 9. Swept Blends

i. Understanding Swept Blend Theory
ii. Creating Swept Blend Surfaces by Selecting Sections
iii. Creating Swept Blend Surfaces by Sketching Sections
iv. Analyzing Swept Blend Surface Section Options
v. Analyzing Swept Blend Surface Section Plane Control
vi. Analyzing Horizontal and Vertical Control in a Swept Blend Surface
vii. Analyzing Swept Blend Surface Tangency
viii. Analyzing Swept Blend Surface Options
ix. Analyzing Swept Blend Rules

Knowledge Check Questions

Module 10. Analyzing Surface Curvature

i. Analyzing Surfaces Theory
ii. Defining Curvature
iii. Defining Curvature Continuity
iv. Analyzing Curvature of Curves
v. Analyzing Curvature of Surfaces
vi. Analyzing Curvature using Sections
vii. Analyzing Curvature using Normals
viii. Using Shaded Curvature Analysis for Surfaces
ix. Using Shaded Section Curvature Analysis
x. Creating Curvature Continuous Surfaces
xi. Analyzing Connections

Knowledge Check Questions

Module 11. Additional Surface Analysis Tools

i. Using the Point Analysis Option
ii. Using the Radius Analysis Option
iii. Using the Dihedral Angle Analysis Option
iv. Using the Offset Analysis Option
v. Using the Draft Analysis Option
vi. Using the Slope Analysis Option
vii. Using the Reflection Analysis Option
viii. Using the Shadow Analysis Option

Knowledge Check Questions

Module 12. Extending and Trimming Surfaces

i. Extending Surfaces
ii. Extending Surfaces Using Measurements
iii. Analyzing Extend Surface Options
iv. Creating a Surface Trim
v. Trimming Surfaces with Geometry
vi. Trimming Surfaces with Quilts Options
vii. Trimming Surfaces with the Silhouette Trim Option
viii. Trimming Surfaces with the Vertex Round Option

Knowledge Check Questions

Module 13. Manipulating Surfaces

i. Copying and Pasting Surfaces
ii. Offsetting Surfaces
iii. Offsetting Surfaces with the Expand Option
iv. Offsetting Surfaces with Draft
v. Moving and Rotating Quilts
vi. Mirroring Quilts
vii. Merging Surfaces
viii. Untrimming Surface Copies
ix. Flattening Quilts

Knowledge Check Questions

Module 14. Creating and Editing Solids using Quilts

i. Thickening Surface Quilts
ii. Solidifying Quilts to Add Material
iii. Solidifying Quilts to Remove Material
iv. Solidifying Quilts to Replace Material
v. Offsetting Surfaces using the Replace Option
vi. Creating Rounds on Surfaces
vii. Converting Solid Rounds to Surfaces

Knowledge Check Questions

Module 15. Master Model Technique

i. Master Model Technique Theory
ii. Creating a Master Model
iii. Creating Framework in the Master
iv. Creating Surfaces in the Master
v. Refining and Completing the Master Model
vi. Sharing Geometry from the Master Model
vii. Completing Body Components

Knowledge Check Questions

Module 16. Project

i. The Shaver
ii. Creating the Master Model
iii. Creating Framework in the Master Model
iv. Creating Surfaces in the Master Model
v. Refining and Completing the Master Model
vi. Sharing Geometry from the Master Model
vii. Creating a Body Component