SOLIDWORKS Surfacing Professional (CSWP-SU) Certification Prep Course

Target Audience

This course is designed for SOLIDWORKS users who want to become Certified SOLIDWORKS Professional in Surfacing CSWP-SU. It is suitable for users who have basic knowledge of SOLIDWORKS and want to develop advanced surfacing skills and achieve the CSWP-SU Surfacing certification.

Course Outcomes

- Understand surface modeling concepts and workflows in SOLIDWORKS
- Apply surface creation tools such as loft, boundary, sweep, and fill
- Edit, trim, knit, and repair complex surfaces
- Convert surfaces into solid models and perform hybrid modeling
- Analyze surface quality using curvature and zebra analysis tools
- Prepare for and successfully pass the CSWP-SU Certification exam

Course Objectives

- Develop structured knowledge of surfacing tools and techniques
- Build proficiency in creating and modifying complex surface models
- Enable learners to work with imported geometry and repair surfaces
- Introduce advanced surfacing workflows and hybrid modeling techniques
- Reinforce learning through exercises aligned with certification requirements
- Prepare participants comprehensively for the CSWP-SU certification exam

Course Outline

The course comprises **40-hours** of theory and labs and is divided into **13** different chapters. Each chapter will be followed by hands-on lab exercises to reinforce learning and gauge understanding of the topics covered.

Table of Contents

Chapter 2. Sketching for Surfacing

- Drawing a Line
- Drawing a Rectangle
- Drawing a Circle
- Drawing an Arc
- Drawing an Ellipse
- Drawing a Spline
- 3D Sketch Creation
- Convert Entities
- Trim
- Offset
- Sketch Relations
- Smart Dimension
- Fully Defined Sketch

Chapter 3. Reference Geometry and Curves

- Reference Planes
- Reference Axis
- Reference Points
- Coordinate System
- 3D Curves
- Projected Curves
- Composite Curves
- Helix and Spiral
- Spline Creation
- Guided Curves

Chapter 4. Basic Surface Features

- Planar Surface
- Extruded Surface
- Revolved Surface
- Swept Surface
- Lofted Surface
- Boundary Surface
- Filled Surface

Chapter 5. Surface Editing Tools

- Trim Surface
- Untrim Surface
- Extend Surface
- Knit Surface
- Offset Surface
- Move Face
- Replace Face
- Delete Face
- Split Solid Body

Chapter 6. Advanced Surfacing Tools

- Ruled Surface
- Surface Fillet
- Thicken Surface
- Surface Patterns
- Mirror Surface
- Surface Modeling Techniques

Chapter 7. Surface Evaluation and Repair

- Zebra Stripes
- Curvature Analysis
- Draft Analysis
- Check Tool
- Repair Geometry
- Surface Continuity

Chapter 8. Solid and Surface Conversion

- Convert Surface to Solid
- Thicken Surface
- Cut with Surface
- Intersect Tool

Chapter 9. Mass Properties and Evaluation

- Mass Properties
- Density
- Volume
- Mass
- Center of Mass

Chapter 10. CSWP-SU Exam – Surface Creation

- Spline Creation
- 3D Curve Creation
- Boundary Surface
- Loft/Blend Surfaces
- Swept Surface
- Filled Surface
- Planar Surface

Chapter 11. CSWP-SU Exam – Surface Editing

- Knit Surface
- Trim Surface
- Untrim Surface
- Extend Surface
- Offset Surface
- Ruled Surface
- Surface Fillet
- Thicken

Chapter 12. CSWP-SU Exam – Surface Modification and Analysis

- Move Face
- Split Solid Body

- Guided Curves
- Surface Evaluation
- Mass Properties

Chapter-13. Additional Surfacing Concepts

- Solids and Surfaces
- Geometry vs Topology
- What is a Solid
- Euler's Formula
- Behind the Scenes
- Adjusting Feature Manager Settings
- Extruded Surface
- Planar Surface
- Trim Surface
- Untrim Surface
- Face Curves and Mesh Preview
- Face Curves
- Surface Types
- Four-Sided Surfaces
- Knit Surface
- Creating Solids from Surfaces
- Create Solid
- Thicken
- Decomposing a Solid into Surfaces
- Delete Face
- Boolean Operations
- Edges vs Holes
- Why Use Surfaces
- When Not to Use Surfaces
- Hybrid Modeling
- Continuity Explained
- Workflow with Surfaces
- Working with Images
- Layout Sketch
- Identify Symmetry and Edges
- Identify Functional Faces
- Check Entity
- Understanding Rebuild Options
- Verification on Rebuild
- Folders in the FeatureManager Design Tree
- Curve Through Reference Points
- Revolved Surface
- Swept Surface
- Radiate Surface
- Cut with Surface

- Intersect
- Solid from Imported Surfaces
- Extend Surface
- Ruled Surface
- Replace Face
- Offset Surface
- Surface Flatten
- Importing Data
- Modeling Kernels
- File Formats
- Import Diagnostics
- Display Curvature
- Filled Surface
- Extend Surface
- Boundary Surface
- Spline on Surface
- Freeform
- Partial Ellipse
- Instant3D
- Master Model Technique
- Split Feature
- Draft Analysis