

## SOLIDWORKS Simulation Static – 3 days (21h)

### 1. The Analysis Process

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- The analysis process
- SOLIDWORKS Simulation options
- Preprocessing
- Meshing
- Processing
- Postprocessing
- Multiple studies
- Reports
- Summary
- References

### 2. Mesh Controls, Stress Concentrations, and Boundary Conditions

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- Objectives
- Mesh Control
- Understanding the effect of Boundary Conditions

### 3. Assembly Analysis with Interactions

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- Interaction Analysis
- Study Propertiews
- Contact or bonded interaction
- Local Interaction

### 4. Symmetrical and Free Self- Equilibrated Assemblies

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- Shrink Fit Parts
- Analysis with Soft Springs

### 5. Assembly Analysis with Connectors and Mesh Refinement

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- Problem Statement
- Remote Load/Mass
- Connectors
- Mesh Control in an Assembly
- Mesh Plots

### 6. Bonded Mesh Options

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- Bonded Mesh Options
- Centrifugal Force
- Cyclical Symmetry
- Bonding Options
- Bonding Formulation

### 7. Analysis of Thin Components

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- Thin Components
- Mesh with Solid Elements
- Refined Solid Mesh
- Solid vs. Shell
- Creating Shell Elements
- Shell Elements - Mid-plane surface

### 8. Mixed Meshing - Shells & Solids

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- Mixed meshing - Solids and Shells

### 9. Beam Elements- Analysis of a Conveyor Frame

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- Beam and Truss elements

### 10. Mixed Meshing Solids, Beams & Shells

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- Mixed Meshing
- Beam Imprint

### 11. Design Study

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- Multiple load cases
- Geometry modification

*see Part 2 on next page »*

**Course Objectives :** At the end of each course, students will know the capabilities of the software and will be able to use the learned features.

**Training Course :** Training is given in class at SolidXperts or online where each student has access to a workstation or online product version.

**Methodology :** Training is based on case studies demonstrated by the instructor. At the end of each lesson, time will be given for exercises.

**Competences Evaluation :** During the classwork, the instructor will correct the exercises on-demand and explain the solutions to the entire class if needed.

**Instructor :** SolidXperts trainers are Certified SolidWorks Instructors (CSWI) and authorized by Emploi-Québec.

**Course Materials :** One or more training manuals are included with the training course.

**Attestation :** A certificate will be given to each student at the end of the course to attest to the successful completion of the requirements for the course.

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**SOLIDWORKS Simulation Static (Part 2)****12. Thermal Stress Analysis**

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- Thermal stress analysis
- Saving model in a deformed shape

**13. Adaptive Meshing**

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- Adaptive meshing
- H-adaptivity study
- P-Adaptivity study
- H vs. P elements – summary

**14. Large Displacement Analysis**

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- Small vs. Large displacement analysis
- Small displacement linear analysis
- Large displacement non-linear analysis

**Annex**

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- Meshing Strategy
- Geometry Preparation
- Meshing Quality
- Meshing Parameters
- Meshing Steps
- Failure Diagnosis
- Tips for the Shell Elements Usage
- Requirements for Meshing
- Solvers in SOLIDWORKS Simulation
- Solver Selection
- Help and Customer Support

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