

Structural Validation Essentials

R2017x



3DEXPERIENCE[®]



About this Course

Course objectives

Upon completion of this course you will be able to:

- ▶ Search for simulation data in the database
- ▶ Open the simulation for modification
- ▶ Perform a structural/frequency simulation using the Structural Validation app
- ▶ Perform thermal and thermal-structural simulations the Structural Validation app
- ▶ Review simulations stored in a database and generate reports

Targeted audience

This course is intended for the following role:

- ▶ Stress Engineer

Prerequisites

The following course is required prior to taking this one:

- ▶ None



4 hours

Day 1

- ▶ Lesson 1 Introduction
- ▶ Lesson 2 Structural Simulation Basics
- ▶ Workshop 1 Stress Analysis of a Medication Reminder
- ▶ Workshop 2 Stress Analysis of a Pump Assembly
- ▶ Lesson 3 Other Simulation Topics
- ▶ Workshop 3 Thermal Simulation of a Heat Sink
- ▶ Workshop 4 Thermal-Structural Simulation of an Exhaust Manifold

Additional Material

- ▶ Appendix 1 Cloud-based Simulation Roles

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COMPETITIVE.

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We offer regularly scheduled public seminars as well as training courses at customer sites. An extensive range of courses are available, ranging from basic introductions to advanced courses that cover specific analysis topics and applications. On-site courses can be customized to focus on topics of particular interest to the customer, based on the customer's prior specification. To view the worldwide course schedule and to register for a course, visit the links below.

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 - > By Course
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 - > By Location
 - > By Course
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Revision Status

Lesson 1	12/16	Updated for R2017x
Lesson 2	12/16	Updated for R2017x
Lesson 3	12/16	Updated for R2017x
Appendix 1	12/16	New for R2017x
Workshop 1	12/16	Updated for R2017x
Workshop 2	12/16	Updated for R2017x
Workshop 3	12/16	Updated for R2017x
Workshop 4	12/16	Updated for R2017x

Lesson 1: Introduction

Lesson content:

- ▶ Introduction
- ▶ **3DEXPERIENCE** Platform Basics
- ▶ Geometry for simulation



1 hour

Lesson 2: Structural Simulation Basics

Lesson content:

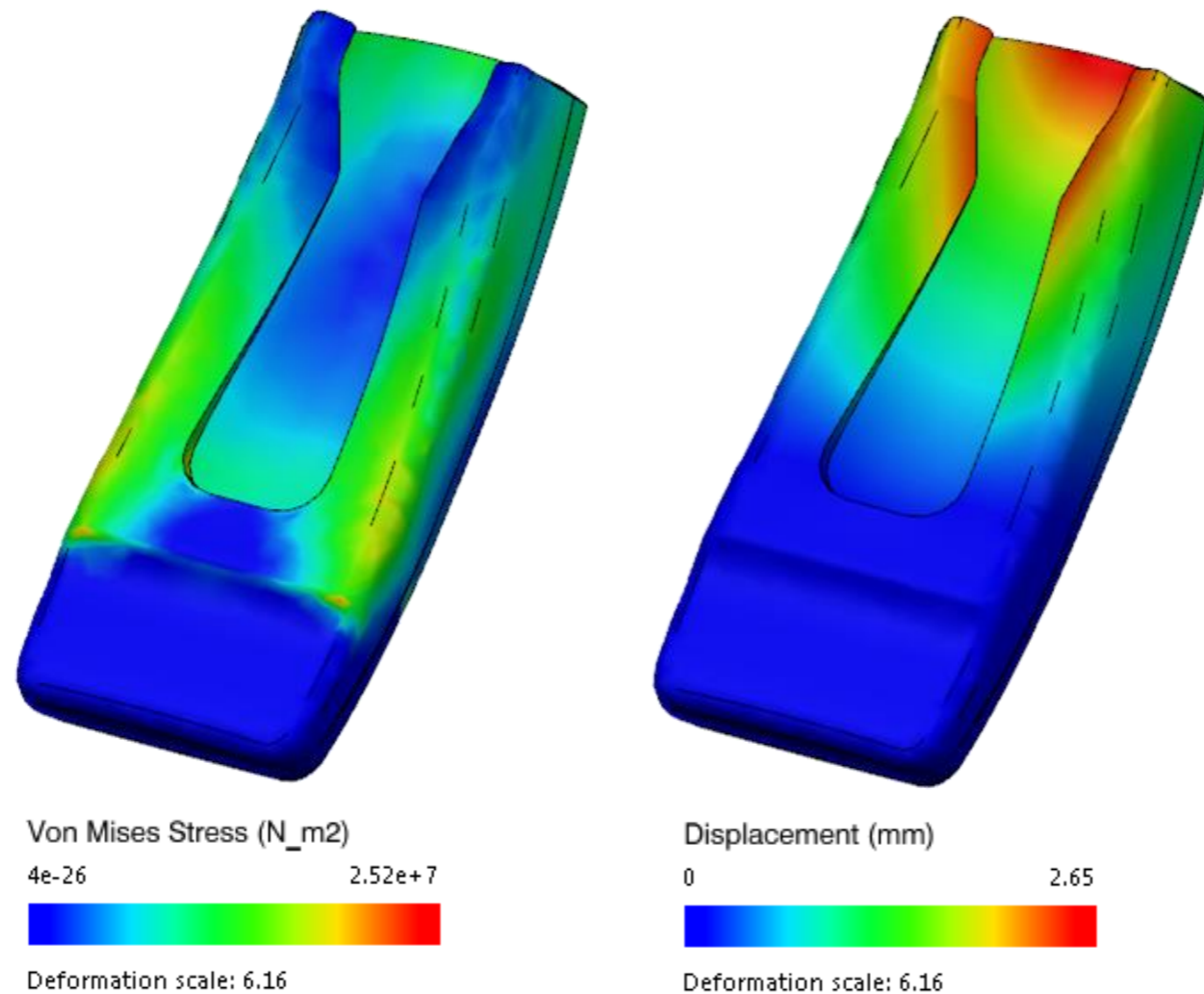
- ▶ Introduction: Running a Simulation
- ▶ Contributing Parts
- ▶ Solution Mode
- ▶ Materials
- ▶ Structural Connections
- ▶ Structural Restraints
- ▶ Structural Loads
- ▶ Simulate: Basics
- ▶ Results: Basics
- ▶ Workshop Preliminaries
- ▶ Workshop 1: Medical reminder
- ▶ Workshop 2: Pump assembly



2 hours

Workshop 1: Stress Analysis of a Medication Reminder

In this workshop, we consider the Medication Reminder assembly shown below. The assembly consists of two parts, a top cover and a bottom part. The design is simple, appealing and very easy to use. As a designer, however, you may not know if this product is sturdy enough and if it will hold together in a real life situation or qualify the product specification. By running a static stress simulation, you can come to a conclusion about the product design and thereby develop a mature product.

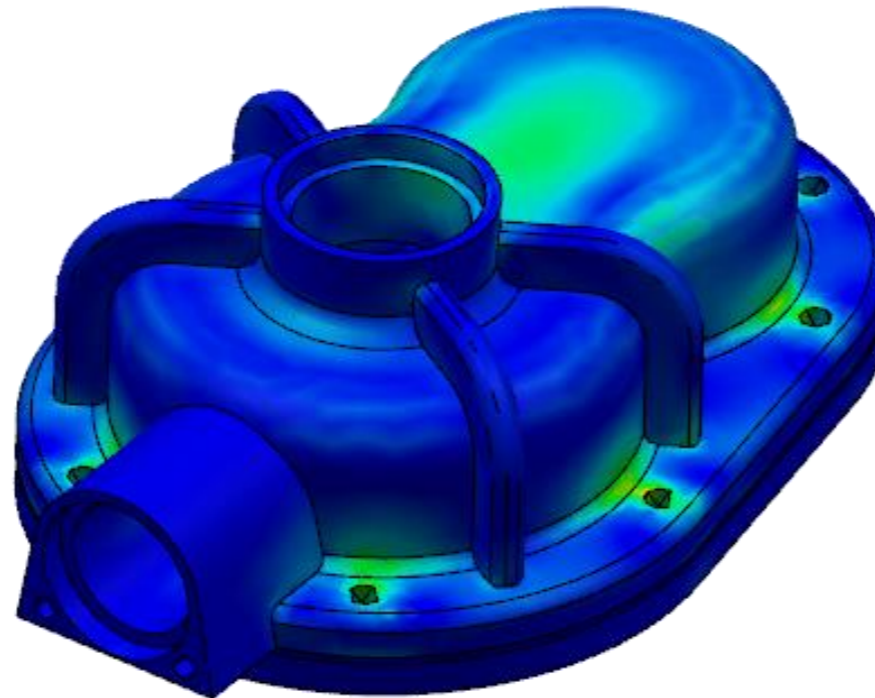


45 minutes

Workshop 2: Stress Analysis of a Pump Assembly

In this workshop, the structural response of the pump assembly shown below will be determined. The assembly components include the pump housing, a gasket, and a cover. The analysis involves application of pre-tensioning loads in the bolts as well as internal pressure. At the end of this workshop, you will be able to do the following:

1. Setup a structural simulation using the Structural Validation app.
2. Create bonded connections to hold the parts together.
3. Create bolted connections and apply a pre-tension load to the system.
4. Apply an internal pressure to the pump assembly.



45 minutes

