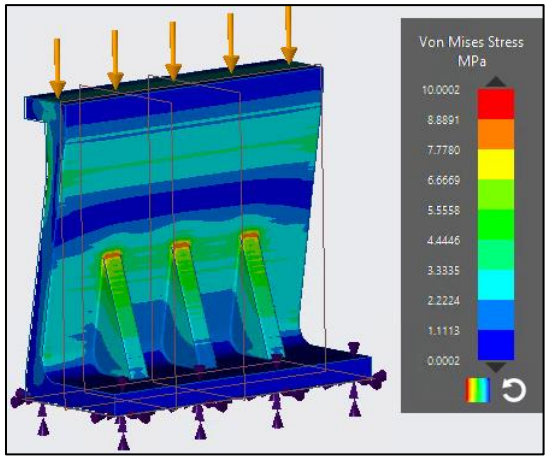
ptc university

Real-Time Simulation using Creo Simulation Live

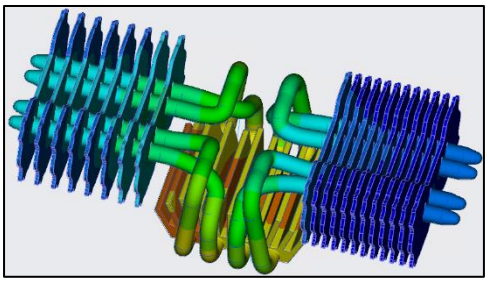
Overview

Course Code:	TRN-5329-T
Course Length:	8 Hours

Creo Simulation Live gives you real-time feedback on your design decisions as you make them. This fast, easy-to-use tool is fully integrated into the 3D CAD modeling environment. Now you can iterate more quickly, generate more options, and design with greater confidence. In this course you learn the basics of Finite Element Analysis (FEA), followed by how to create real-time structural, thermal, and modal simulations. You learn how to apply various constraints and loads to the simulations.



Course Objectives



- Teach students the basic principles of Finite Element Analysis (FEA).
- Explain the basics of FEA analysis including strength versus stress;
  factor of safety; stress, strain, and Hooke's Law;
  stress concentrations, and failure theory.
- Optimize the CAD model using Creo techniques.
- Create real-time structural simulations.
- Create real-time thermal simulations.
- Create real-time modal simulations.
- Add constraints and loads to real-time simulations.

Prerequisites

- Knowledge of fundamental Creo Parametric concepts, including parent/child relationships, references, working directory, In Session memory, and so on.

Audience

- Any Creo designer or engineer upstream of his or her company's analysis team.

Hardware Requirements

- Creo Simulation Live requires a system with an **NVIDIA CUDA® graphics card**
  - **Minimum 4Gb RAM** or 8Gb+ for optimal performance.
  - PTC will offer a hardware utility downloadable from ptc.com to check system requirements.
- Supported systems for Creo from various hardware vendors can be found on the Platform Support page on ptc.com.
- Example of supported systems for Creo Simulation Live with NVIDIA CUDA-Enabled cards
  - Dell Precision 7730
    - NVIDIA Quadro P4200
    - GPU Memory: 8Gb GDDR5
  - HP Zbook 15 G5
    - NVIDIA Quadro P2000
    - GPU Memory: 5Gb GDDR5
  - Lenovo ThinkStation P920
    - NVIDIA Quadro P920
    - GPU Memory: 8Gb GDDR5

- Supported Quadro Graphics Cards

Quadro P2000	Quadro M2000	Quadro K2200
Quadro P4000	Quadro M4000	Quadro K4200
Quadro P4200	Quadro M5000	Quadro K5200
Quadro P5000	Quadro M6000	Quadro K6000
Quadro P6000	Quadro M6000 24GB	
Quadro GP100		
Quadro GV100		

Other cards may be suitable from the desktop gaming line – RTX/GTX

Agenda

Day 1

Module	1	Introduction
Module	2	Finite Element Analysis (FEA)
Module	3	The Basics
Module	4	Failure Theories
Module	5	Structural Simulation
Module	6	Thermal Simulation
Module	7	Modal Simulation
Module	8	Project