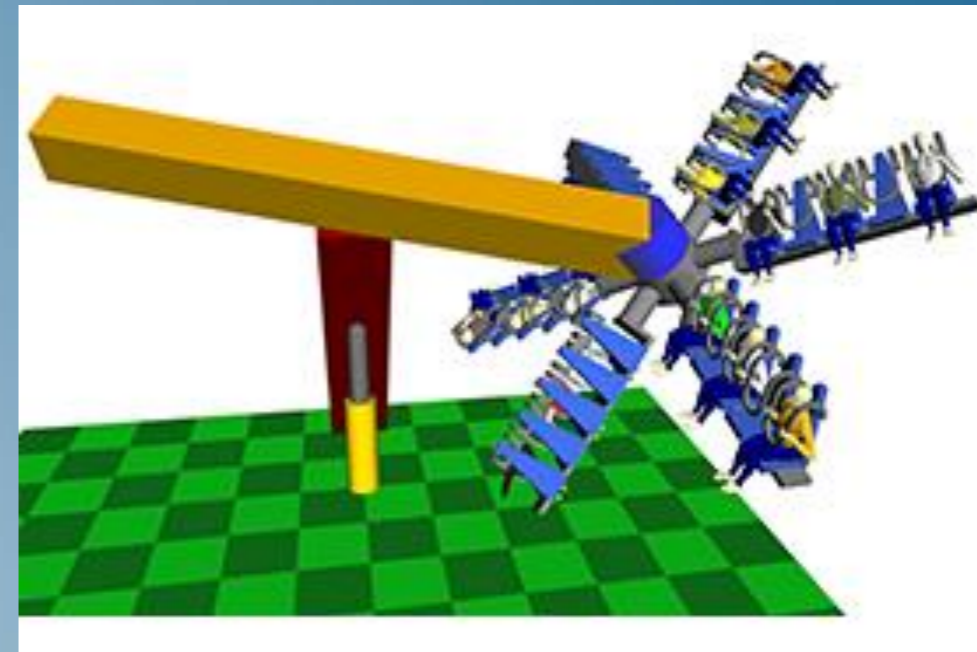


Introduction to Simpack

Simpack 2021x



3DEXPERIENCE[®]

About this Course

Course objectives

Upon completion of this course you will be able to:

- ▶ Build multibody models in Simpack
- ▶ Start the most important Simpack solvers
- ▶ Postprocess the results
- ▶ Parameterize models in an efficient way
- ▶ Set up modular models using Simpack's substructuring concept

Targeted Audience

- ▶ Simulation analysts and design engineers
- ▶ Multibody simulation experts with no previous experience of Simpack

Prerequisites

- ▶ Some familiarity with fundamental multibody concepts



3 days

Day 1

- ▶ Lesson 1 Overview of Simpack
- ▶ Lesson 2 Building Blocks of Multibody Simulation
- ▶ Lesson 3 Simpack User Interface
 - Workshop 1 Double Pendulum
- ▶ Lesson 4 Equations and How They Are Solved
 - Workshop 2 Offline Solving
- ▶ Lesson 5 Postprocessing with Simpack Post
 - Workshop 3 Double Pendulum Postprocessing
- ▶ Lesson 6 Force Elements
 - Workshop 4 Two-mass Oscillator Setup
 - Workshop 5 Two-mass Oscillator Simulations

Day 2

- ▶ Lesson 7 Excitations
 - Workshop 6 Sweep Excitation

- ▶ Lesson 8 Useful Tools

- ▶ Lesson 9 Constraints

- ▶ Lesson 10 State Dependency
 - Workshop 7 Slider-Link Mechanism
 - Workshop 8 Four-Bar Link Mechanism

- ▶ Lesson 11 Connections
 - Workshop 9 Connections
 - Workshop 10 Slider-Crank Mechanism

- ▶ Lesson 12 Advanced Force Elements
 - Workshop 11 Swaying Platform with Bumpstop

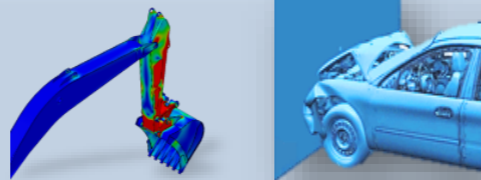
Day 3

- ▶ Lesson 13 Simpack Post Advanced Functionality
- ▶ Lesson 14 Parameterization and External Data
- ▶ Lesson 15 Substructuring
 - Workshop 12 Multi-Pendulum with Substructures
 - Workshop 13 Wind Turbine Communicators
 - Workshop 14 Poseidon Amusement Ride
- ▶ Lesson 16 Command Line and Scripting (Optional)
 - Workshop 15 Pre Scripting First Steps (Optional)

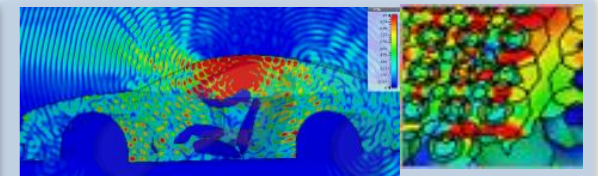
SIMULIA

- ▶ SIMULIA is the Dassault Systèmes brand for realistic simulation solutions.
- ▶ Advanced simulation portfolio covering simulation disciplines such as structural mechanics, computational fluid dynamics and electromagnetic field simulation, for a true multiphysics simulation approach.

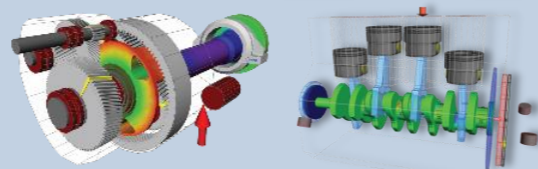
Structures



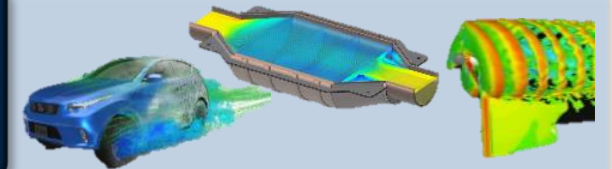
Electromagnetics



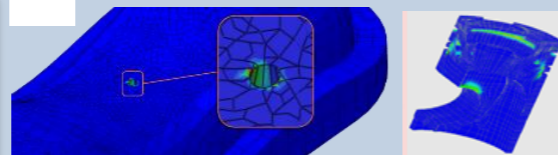
Multibody



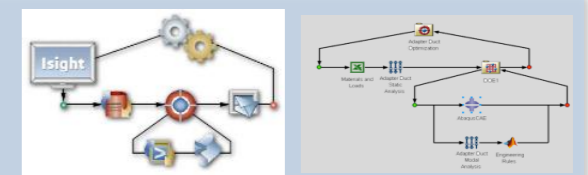
Fluids



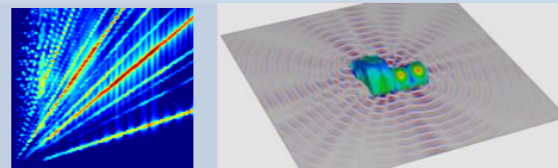
Durability



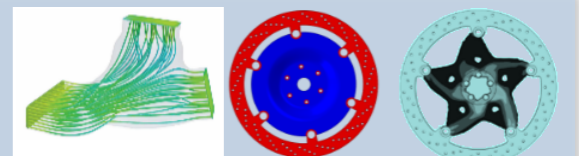
Automation



Vibro-acoustics



Optimization



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Revision Status

Lesson 1	11/20	Updated for Simpact 2021x
Lesson 2	11/20	Updated for Simpact 2021x
Lesson 3	11/20	Updated for Simpact 2021x
Lesson 4	11/20	Updated for Simpact 2021x
Lesson 5	11/20	Updated for Simpact 2021x
Lesson 6	11/20	Updated for Simpact 2021x
Lesson 7	11/20	Updated for Simpact 2021x
Lesson 8	11/20	Updated for Simpact 2021x
Lesson 9	11/20	Updated for Simpact 2021x
Lesson 10	11/20	Updated for Simpact 2021x
Lesson 11	11/20	Updated for Simpact 2021x
Lesson 12	11/20	Updated for Simpact 2021x
Lesson 13	11/20	Updated for Simpact 2021x
Lesson 14	11/20	Updated for Simpact 2021x
Lesson 15	11/20	Updated for Simpact 2021x
Lesson 16	11/20	Updated for Simpact 2021x

Workshop 1	11/20	Updated for Simpact 2021x
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Workshop 8	11/20	Updated for Simpact 2021x
Workshop 9	11/20	Updated for Simpact 2021x
Workshop 10	11/20	Updated for Simpact 2021x
Workshop 11	11/20	Updated for Simpact 2021x
Workshop 12	11/20	Updated for Simpact 2021x
Workshop 13	11/20	Updated for Simpact 2021x
Workshop 14	11/20	Updated for Simpact 2021x
Workshop 15	11/20	Updated for Simpact 2021x

Lesson 1: Overview of Simpack

Lesson content:

- ▶ Overview of Multibody Simulation
- ▶ What is Simpack?
- ▶ Simpack Application Areas
- ▶ Simpack Product Portfolio
- ▶ Simpack Interfaces
- ▶ Simpack Documentation



30 minutes

Lesson 2: Building Blocks of Multibody Simulation

Lesson content:

- ▶ Kinematics and Dynamics
- ▶ Multibody Systems
- ▶ Modeling Element Categories
- ▶ (Rigid) Bodies
- ▶ Markers
- ▶ Primitives (Geometry)
- ▶ Joints
- ▶ General Conventions
- ▶ Steps in Setting up a Simpack Model



40 minutes

Lesson 3: Simpack User Interface

Lesson content:

- ▶ Simpack User Interface Executables
- ▶ ViewSets
- ▶ Simpack Pre ViewSet Elements
 - 3D Page
 - 2D Page
 - Model Tree
 - Message Log
- ▶ View and Selection Handling
- ▶ GUI Simulation: Simpack User Interface
- ▶ Workshop 1: Double Pendulum



10 minutes

