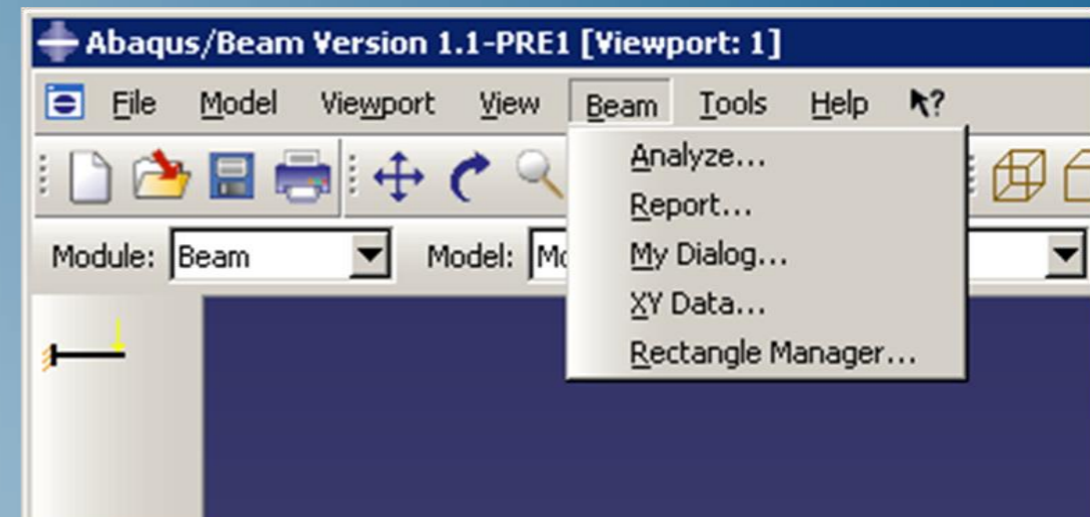


# GUI Customization with Abaqus

Abaqus 2022



**3DEXPERIENCE®**

# About this Course

## Course objectives

The goal of this course is to train you to use the Abaqus GUI Toolkit to customize the Abaqus/CAE interface or build your own applications

- ▶ Learn how to build dialogs and issue commands from the GUI
- ▶ Learn how to create and modify GUI modules and toolsets
- ▶ Learn how to create custom applications

## Targeted audience

Users interested in modifying and extending the capabilities of Abaqus by customizing their Abaqus interface

## Prerequisites

This course assumes prior knowledge of the Python programming language and the Abaqus kernel commands. Thus, students *must* attend the Introduction to Abaqus Scripting course prior to attending this class. Experience with object-oriented programming and GUI toolkits is recommended, but not required.



3 days

# Day 1

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- ▶ Lesson 1      GUI Toolkit Introduction
- ▶ Lesson 2      Widget Library
  - Workshop 1    Creating Widgets
- ▶ Lesson 3      Layout Managers
  - Workshop 2    Using Layout Managers
- ▶ Lesson 4      Dialogs
- ▶ Lesson 5      GUI Messaging
  - Workshop 3    Message Handling
- ▶ Lesson 6      Commands and Keywords (Part 1)
  - Workshop 4    Using GUI Commands and Keywords (Part 1)

## Day 2

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- ▶ Lesson 7            Commands and Keywords (Part 2)
- ▶ Lesson 8            Modes (Part 1)
  - Workshop 5        Using GUI Commands and Keywords (Part 2)
- ▶ Lesson 9            Modes (Part 2)
  - Workshop 6        Modes Processing
  - Workshop 7        Procedures
- ▶ Lesson 10           Modules and Toolsets
- ▶ Lesson 11           Building Applications
  - Workshop 8        Creating an Application
  - Workshop 9        Additional Exercises

# Day 3

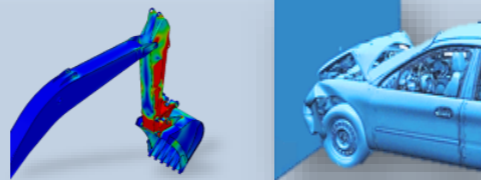
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- ▶ Lesson 12            Other Topics
  - Workshop 10    Using customData
  
- ▶ Wrap up              Finish workshops  
                            Consulting for company-specific applications

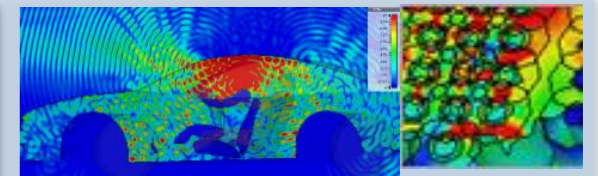
# SIMULIA

- ▶ 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.

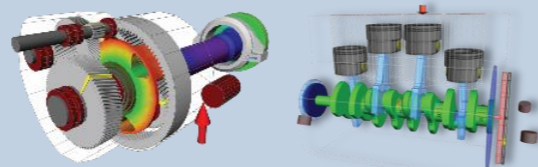
## Structures



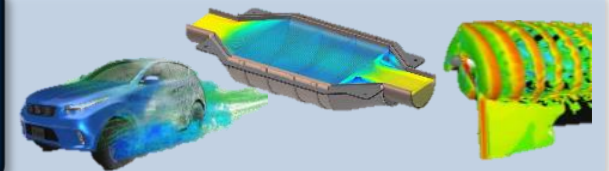
## Electromagnetics



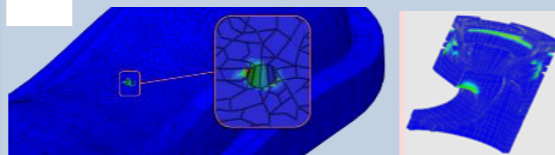
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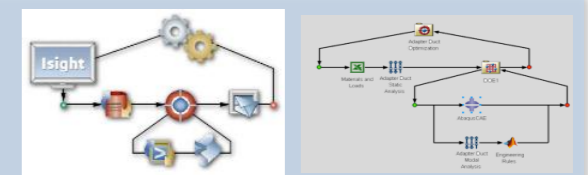
## Fluids



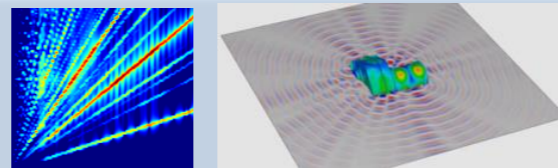
## Durability



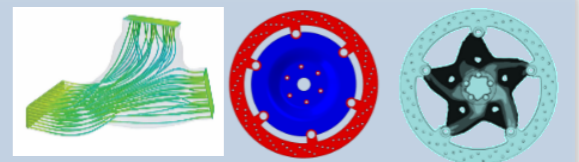
## Automation



## Vibro-acoustics



## Optimization



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# Revision Status

<b>Lesson 1</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
<b>Lesson 2</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
<b>Lesson 3</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
<b>Lesson 4</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
<b>Lesson 5</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
<b>Lesson 6</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
<b>Lesson 7</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
<b>Lesson 8</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
<b>Lesson 9</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
<b>Lesson 10</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
<b>Lesson 11</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
<b>Lesson 12</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>

<b>Workshop 1</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
<b>Workshop 2</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
<b>Workshop 3</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>
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<b>Workshop 10</b>	<b>11/21</b>	<b>Updated for Abaqus 2022</b>

# Lesson 1: GUI Toolkit Introduction

## *Lesson content:*

- ▶ Types of Customization
- ▶ Background
- ▶ Abaqus GUI Toolkit
- ▶ Example
- ▶ Documentation and References
- ▶ Customization Services
- ▶ GUI Application Components



30 minutes

# Lesson 2: Widget Library

## *Lesson content:*

- ▶ GUI Application Overview
- ▶ Introduction
- ▶ Widgets
- ▶ Workshop Preliminaries
- ▶ Workshop 1: Creating Widgets



1.5 hours

# Lesson 3: Layout Managers

## *Lesson content:*

- ▶ GUI Application Overview
- ▶ Layout Managers
- ▶ Layout Hints
- ▶ Example
- ▶ Workshop 2: Using Layout Managers



2 hours

# Lesson 4: Dialogs

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## *Lesson content:*

- ▶ GUI Application Overview
- ▶ Dialogs



**30 minutes**

# Lesson 5: GUI Messaging

## *Lesson content:*

- ▶ Messaging
- ▶ Workshop 3: Message Handling



1.5 hours

# Lesson 6: Commands and Keywords (Part 1)

## *Lesson content:*

- ▶ GUI Application Overview
- ▶ Data Targets
- ▶ GUI Commands and Keywords
- ▶ AFX Targets
- ▶ Using Keywords and Targets with Widgets
- ▶ Workshop 4: Using GUI Commands and Keywords (Part 1)



1.5 hours

# Lesson 7: Commands and Keywords (Part 2)

## *Lesson content:*

- ▶ GUI Application Overview
- ▶ Data Targets
- ▶ Using Keywords and Targets with Widgets



30 minutes

# Lesson 8: Modes (Part 1)

## *Lesson content:*

- ▶ GUI Application Overview
- ▶ Modes
- ▶ Form Example
- ▶ Workshop 5: Using GUI Commands and Keywords (Part 2)



1.5 hours

# Lesson 9: Modes (Part 2)

## *Lesson content:*

- ▶ GUI Application Overview
- ▶ Detailed Mode Execution
- ▶ Procedure Modes
- ▶ Procedure Example
- ▶ Workshop 6: Modes Processing
- ▶ Workshop 7: Procedures



2.5 hours

# Lesson 10: Modules and Toolsets

## *Lesson content:*

- ▶ GUI Application Overview
- ▶ Modules and Toolsets



15 minutes

# Lesson 11: Application Overview

## *Lesson content:*

- ▶ GUI Application Overview
- ▶ Applications
- ▶ The Main Window
- ▶ Customizing Abaqus/CAE
- ▶ Workshop 8: Creating an Application
- ▶ Workshop 9: Additional Exercises



3 hours

# Lesson 12: Other Topics

## *Lesson content:*

- ▶ Plug-ins
- ▶ Custom Data
- ▶ Internationalization
- ▶ Context Sensitive Help
- ▶ Miscellaneous
- ▶ Feedback
- ▶ Workshop 10: Using customData



1.5 hours