

Introduction to Abaqus/CAE

Abaqus 2018





3DEXPERIENCE[®]

About this Course

Course objectives

Upon completion of this course you will be able to:

- ▶ Use Abaqus/CAE to create complete finite element models.
- ▶ Use Abaqus/CAE to submit and monitor analysis jobs.
- Use Abaqus/CAE to view and evaluate simulation results.

Targeted audience

Simulation Analysts

Prerequisites

None



Day 1

Lesson 1	Introducing Abaqus/CAE	
Demo 1	A First Look at Abaqus	
Workshop 1	Overview of Abaqus/CAE	
Lesson 2	Working with Geometry in Abaqus/CAE	
Demo 2a	Working with Native Geometry	
Demo 2b	Generating a Shell Feature from a Solid Feature	
Demo 2c	Generating a Shell From a Thin Solid	
Workshop 2a	Solid and Rigid Parts—Hinge Model	
Workshop 2b	Creating Parts Using Constraints and Dimensions	
Workshop 2c	Creating Parts—Clip and Plate Model	
Lesson 3	Working with Models Created Outside Abaqus	
Demo 3	Importing and Editing an Orphan Mesh	
Workshop 3	Orphan Mesh Editing—Pump Model	

Less	on 4	Material Properties and Assemblies		
	Demo 4a	Materials and Sections; Visualizing Beam Cross-Sections		
	Demo 4b	Creating an Assembly; Boolean Operations		
	Workshop 4a	Assigning Material Properties and Defining the Assembly—Hinge Model		
	Workshop 4b	Assigning Material Properties and Defining the Assembly—Clip and Plate Model		
Lesson 5		Steps, Interactions, and Loads		
	Demo 5a	Creating Steps		
	Demo 5b	Using the Load Module		
	Demo 5c	Defining a Rigid Body		
	Demo 5d	Using Automatic Contact Detection and General Contact		
	Workshop 5a	Defining Steps, Interactions, Boundary Conditions, and Loads— Hinge Model		
	Workshop 5b	Defining Steps, Interactions, Boundary Conditions, and Loads—Clip and Plate Model		

Day 2 (cont'd)

Less	son 6	Meshing
	Demo 6a	Using the Mesh Module
	Demo 6b	Partitioning and Meshing
	Workshop 6a	Three-Dimensional Meshing—Hinge Model
	Workshop 6b	Two-Dimensional Meshing—Fuse Model
	Workshop 6c	Meshing—Clip and Plate Model
Less	son 7	Job Management and Results Visualization
	Demo 7a	Using the Keywords Editor
	Demo 7b	Visualizing Results
	Workshop 7a	Job Management and Visualization—Hinge Model
	Workshop 7b	Visualizing Results and Modifying the Model Definition—Clip and Plate Model

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Training Schedule & Registration

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.

North American



- > By Location
- > By Course

International



> By Location

> By Course

Live Online Training



> Full Schedule

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Lesson 1	11/17	Updated for Abaqus 2018
Lesson 2	11/17	Updated for Abaqus 2018
Lesson 3	11/17	Updated for Abaqus 2018
Lesson 4	11/17	Updated for Abaqus 2018
Lesson 5	11/17	Updated for Abaqus 2018
Lesson 6	11/17	Updated for Abaqus 2018
Lesson 7	11/17	Updated for Abaqus 2018
Demonstration 1	11/17	Updated for Abaqus 2018
Demonstration 2a	11/17	Updated for Abaqus 2018
Demonstration 2b	11/17	Updated for Abaqus 2018
Demonstration 2c	11/17	Updated for Abaqus 2018
Demonstration 3	11/17	Updated for Abaqus 2018
Demonstration 4a	11/17	Updated for Abaqus 2018
Demonstration 4b	11/17	Updated for Abaqus 2018
Demonstration 5a	11/17	Updated for Abaqus 2018
Demonstration 5b	11/17	Updated for Abaqus 2018
Demonstration 5c	11/17	Updated for Abaqus 2018
Demonstration 5d	11/17	Updated for Abaqus 2018

Demonstration 6a	11/17	Updated for Abaqus 2018
Demonstration 6b	11/17	Updated for Abaqus 2018
Demonstration 7a	11/17	Updated for Abaqus 2018
Demonstration 7b	11/17	Updated for Abaqus 2018
Workshop 1	11/17	Updated for Abaqus 2018
Workshop 2a	11/17	Updated for Abaqus 2018
Workshop 2b	11/17	Updated for Abaqus 2018
Workshop 2c	11/17	Updated for Abaqus 2018
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Workshop 5b	11/17	Updated for Abaqus 2018
Workshop 6a	11/17	Updated for Abaqus 2018
Workshop 6b	11/17	Updated for Abaqus 2018
Workshop 6c	11/17	Updated for Abaqus 2018
Workshop 7a	11/17	Updated for Abaqus 2018
Workshop 7b	11/17	Updated for Abaqus 2018

Lesson 1: Introducing Abaqus/CAE

- What is Abaqus FEA?
- Why Abaqus/CAE Over Other Tools?
- Primary Features of Abaqus/CAE
- Miscellaneous Features of Abaqus/CAE
- Starting Abaqus/CAE
- Important Abaqus/CAE Terminology
- Documentation
- SIMULIA Learning Community
- Abaqus Environment Settings
- Abaqus/CAE Checklist
- Working with the Model Tree
- Workshop Preliminaries
- Demonstration 1: A First Look at Abaqus/CAE
- Workshop 1: Overview of Abaqus/CAE



Lesson 2: Working with Geometry in Abaqus/CAE

- What are Parts?
- Defining a Part
- Geometry Import and Repair
- Building a Part Using the Part Module Tools
- Demonstration 2a: Working with Native Geometry
- Demonstration 2b: Generating a Shell Feature from a Solid Feature
- Demonstration 2c: Generating a Shell From a Thin Solid
- Workshop 2a: Solid and Rigid Parts—Hinge Model
- Workshop 2b: Creating Parts Using Constraints and Dimensions
- Workshop 2c: Creating Parts—Clip and Plate Model



Lesson 3: Working with Models Created Outside Abaqus

- Details of an Abaqus Input File
- Orphan Mesh Import
- Example
- Creating Geometry from an Orphan Mesh
- Combining Orphan and Native Mesh Features
- Demonstration 3: Importing and Editing an Orphan Mesh
- Workshop 3: Orphan Mesh Editing—Pump Model



Lesson 4: Material Properties and Assemblies

- Defining and Assigning Properties
- Material Evaluation
- Material Databases
- Material Calibration
- What is an Assembly?
- Positioning Instances
- Patterning
- Boolean Operations
- Sets and Surfaces
- Display Groups
- Hiding/Showing Instances
- Switching Context for Model and Part Instances
- Demonstration 4a: Materials and Sections; Visualizing Beam Cross-Sections
- Demonstration 4b: Creating an Assembly; Boolean Operations
- Workshop 4a: Assigning Material Properties and Defining the Assembly—Hinge Model
- Workshop 4b: Assigning Material Properties and Defining the Assembly—Clip and Plate Model



Lesson 5: Steps, Interactions, and Loads

- Steps
- Output
- Interactions
- Loads, Boundary Conditions, and Initial Conditions
- Model Verification
- Demonstration 5a: Creating Steps
- Demonstration 5b: Using the Load Module
- Demonstration 5c: Defining a Rigid Body
- Demonstration 5d: Using Automatic Contact Detection and General Contact
- Workshop 5a: Defining Steps, Interactions, Boundary Conditions, and Loads—Hinge Model
- Workshop 5b: Defining Steps, Interactions, Boundary Conditions, and Loads—Clip and Plate Model



Lesson 6: Meshing

- Overview
- Introduction
- Dependent and Independent Part Instances
- Mesh Generation Techniques
- Enabling Various Meshing Techniques
- Bottom-Up Hex Meshing
- Mesh Compatibility
- Controlling Mesh Density and Gradation
- Parametric Modeling
- Assigning Element Types
- Verifying Mesh Quality
- Mass and Mesh Queries
- Demonstration 6a: Using the Mesh Module
- Demonstration 6b: Partitioning and Meshing
- ▶ Workshop 6a: Three-Dimensional Meshing—Hinge Model
- ▶ Workshop 6b: Two-Dimensional Meshing—Fuse Model
- ▶ Workshop 6c: Meshing—Clip and Plate Model



Lesson 7: Job Management and Results Visualization

- Job Management
- Keywords Editor
- Review of ODB Output
- Results Visualization: Basic features
- Results Visualization: Advanced/miscellaneous features
- Demonstration 7a: Using the Keywords Editor
- Demonstration 7b: Visualizing Results
- Workshop 7a: Job Management and Visualization—Hinge Model
- Workshop 7b: Visualizing Results and Modifying the Model Definition—Clip and Plate Model

