LaunchTech

SIMULIA Training Catalogue

2020

Version: 3.0

Date: 27/09/2020

Table of Content

LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

1. LaunchTech Training Offer Overview:

SIMULIA Training	Training Duration (Days)
Introduction to Abaqus	4
Modeling Contact with Abaqus/Standard	2
Obtaining a Converged Solution with Abaqus	2
Modeling Contact and Resolving Convergence with Abaqus	3
Abaqus/Explicit Advanced Topics	3
Fitness-for-Service Analysis with Abaqus	2
Analysis of Composite Materials with Abaqus	3
Abaqus for Offshore Analysis	2
Modeling of Geotechnical Problems with Abaqus	2
Writing User Subroutine with Abaqus	2
Introduction to Isight	2
Introduction to fe-safe	2
Non-Parametric optimization using Abaqus and Tosca	2

LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

2. SIMULIA Trainings Description:

2.1. Introduction to Abaqus

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.
- Solve structural analysis problems using Abaqus/Standard and Abaqus/Explicit, including the effects of material nonlinearity, large deformation and contact.

Targeted audience:

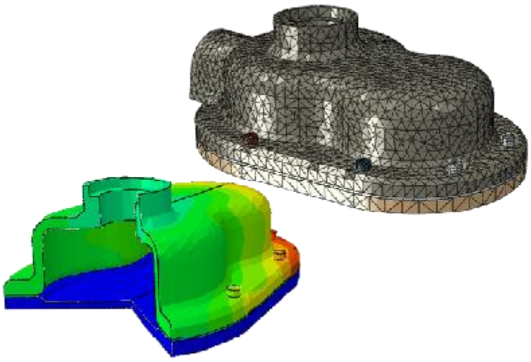
Simulation Analysts

Prerequisites:

None

Training duration:

4 days



LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

2.2. Modeling Contact with Abaqus/Standard

Course objectives:

Upon completion of this course you will be able to:

- Define general contact and contact pairs
- Define appropriate surfaces (rigid or deformable)
- Model frictional contact
- Model large sliding between deformable bodies
- Resolve overclosures in interference fit problems

Targeted audience:

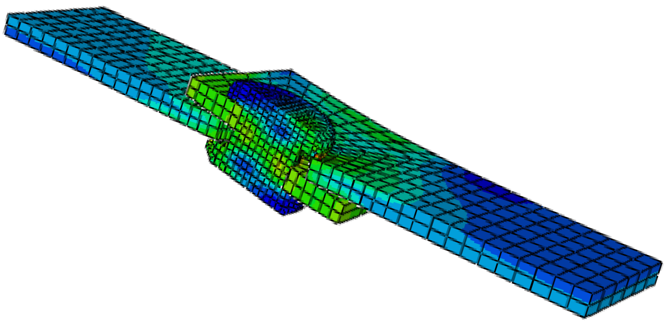
Simulation Analysts

Prerequisites:

This course is recommended for engineers with experience using Abaqus/Standard

Training duration:

2 days



LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

2.3. Obtaining a Converged Solution with Abaqus

Course objectives:

Upon completion of this course you will be able to:

- Understand how nonlinear problems are solved in Abaqus
- Develop Abaqus models that will converge
- Identify modeling errors that cause models to experience convergence difficulties
- Recognize when a problem is too difficult or too ill-posed to be solved effectively

Targeted audience:

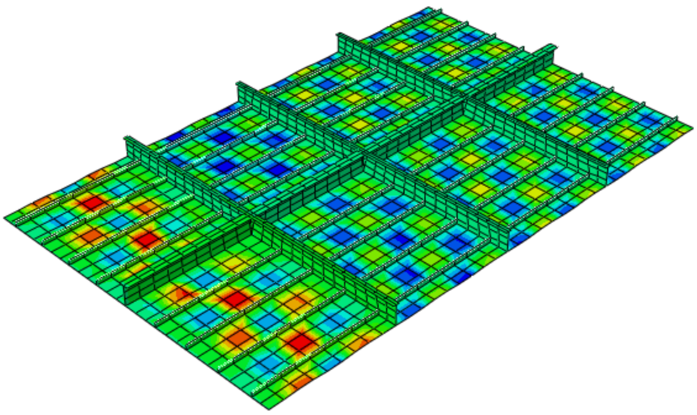
Simulation Analysts

Prerequisites:

This course is recommended for engineers with experience using Abaqus

Training duration:

2 days



LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

2.4. Modeling Contact and Resolving Convergence with Abaqus

Course objectives:

Upon completion of this course you will be able to:

- Define general contact and contact pairs
- Define appropriate surfaces (rigid or deformable)
- Model frictional contact
- Model large sliding between deformable bodies
- Resolve overclosures in interference fit problems
- Understand how nonlinear problems are solved in Abaqus
- Develop Abaqus models that will converge
- Identify modeling errors that cause models to experience convergence difficulties
- Recognize when a problem is too difficult or too ill-posed to be solved effectively

Targeted audience:

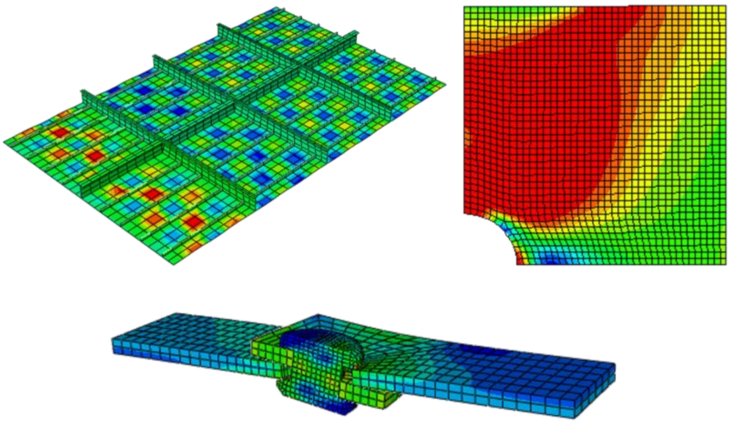
Simulation Analysts

Prerequisites:

This course is recommended for engineers with experience using Abaqus

Training duration:

3 days



LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

2.5. Abaqus/Explicit: Advanced topics

Course objectives:

Upon completion of this course you will be able to:

- Use the explicit dynamics method effectively, including the application of general contact, mass scaling, and adaptive remeshing
- Use Abaqus/Explicit and Abaqus/Standard together to solve difficult problems, including results transfer and co-simulation
- Model high-strain-rate deformation and failure
- Filter output

Targeted audience:

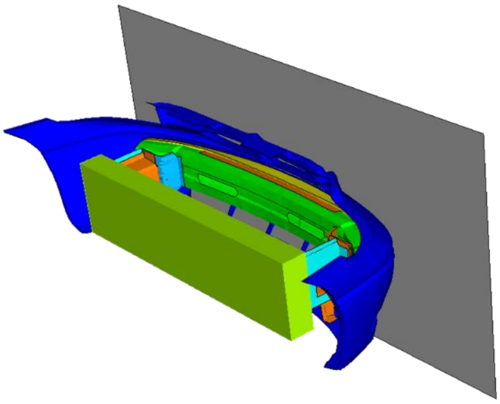
Simulation Analysts

Prerequisites:

This course is recommended for engineers with experience using Abaqus

Training duration:

3 days



LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

2.6. Fitness-for-Service Analysis with Abaqus

Course objectives:

Pressure vessels and piping equipment are periodically assessed based on guidelines prescribed by documents such as ASME/API-579 Fitness-for-Service (FFS). Finite element-based Level – 3 assessments are often utilized for assessing equipment with complex geometries and loading conditions. The course discusses methods for modeling common pressure vessels such as distillation towers, storage vessels, etc. using Abaqus/CAE. Methods for application and verification of loads such as weight of contents, internal pressure, etc. using Abaqus/Standard, as required for Level-3 FFS assessments are also discussed. Procedures for analyzing metal loss using the finite element method by mapping thickness readings from scans are also discussed. The topics include:

- Linear and Nonlinear finite element analysis procedures
- Modeling pressure vessel geometries
- Modeling loads and boundary conditions
- Fitness-for-Service assessment procedures
- FEA based Level – 3 Assessment

Targeted audience:

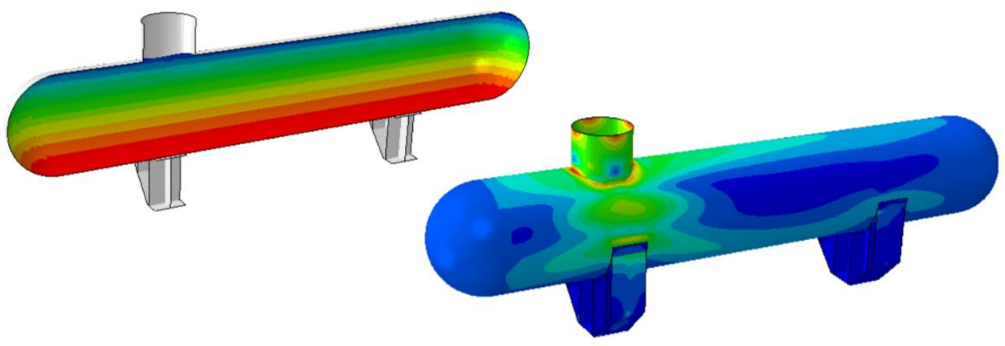
Fixed-Equipment Reliability engineers, Fitness-for-Service engineers, Plant process engineers, Plant-equipment inspectors, Plant managers.

Prerequisites:

None

Training duration:

2 days



LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

2.7. Analysis of Composite Materials with Abaqus

Course objectives:

Upon completion of this course you will be able to:

- Define anisotropic elasticity with Hookean models for combining the fiber-matrix response
- Define composite layups using Abaqus/CAE
- Model sandwich composite structures and stiffened composite panels
- Model progressive damage and failure in composites
- Model delamination and low-cycle fatigue of composite structures

Targeted audience:

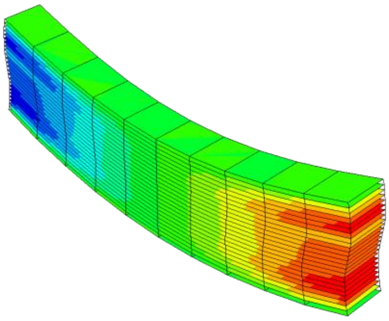
Simulation Analysts

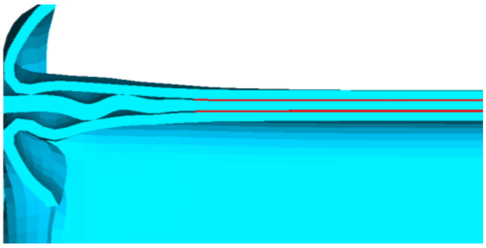
Prerequisites:

This course is recommended for engineers with experience using Abaqus/Standard

Training duration:

3 days





LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

2.8. Abaqus for Offshore Analysis

Course objectives:

The topics covered in this course include:

- Review nonlinear material behavior (metal plasticity and hyperelasticity)
- Capabilities of Abaqus element types in general
- Specific element discussions include drag chain, pipe, PSI and ITT elements
- Pipe-soil interaction, including lateral buckling of a pipe line on a seabed
- Abaqus/Aqua capabilities in Abaqus/Standard to model wave, buoyancy, current & wind loading
- Coupled Eulerian-Lagrangian (CEL) approach in Abaqus/Explicit

Targeted audience:

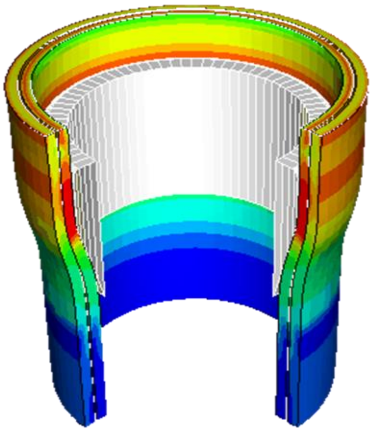
This course is recommended for engineers with experience using Abaqus who work in the Oil and Gas industry.

Prerequisites:

This course is recommended for engineers with experience using Abaqus/Standard

Training duration:

2 days



LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

2.9. Analysis of Geotechnical Problems with Abaqus

Course objectives:

This course includes:

- An overview of modeling geotechnical problems
- Experimental testing and how it relates to the calibration of constitutive models for geotechnical materials
- How to use and calibrate the different geotechnical material constitutive models available in Abaqus
- The limitations of these models
- The coupling between fluid flow and stress/deformation in the analysis of porous media
- Modeling issues related to geotechnical problems

Targeted audience:

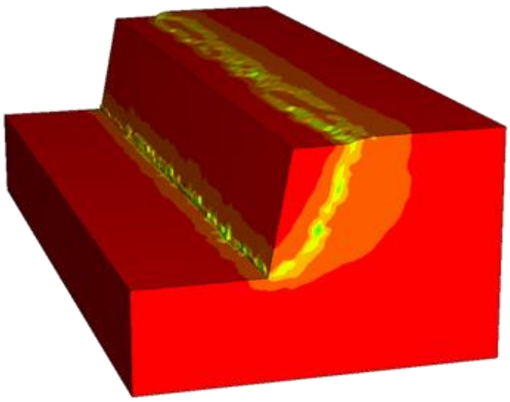
This seminar is recommended for engineers with experience using Abaqus/Standard.

Prerequisites:

This course is recommended for engineers with experience using Abaqus/Standard

Training duration:

2 days



LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

2.10. Writing User Subroutine with Abaqus

Course objectives:

In this course you will learn about:

- When and how to use subroutines
- DLOAD, VDLOAD, and UTRACLOAD for specifying user-defined loading
- FILM for specifying user-defined film conditions
- USDFLD and VUSDFLD for defining field variable dependence
- UVARM for defining a user output variable
- UHYPER for modeling hyperelastic materials
- UMAT and VUMAT for allowing constitutive models to be added to the program
- UEL and VUEL for allowing the creation of user-defined elements

Targeted audience:

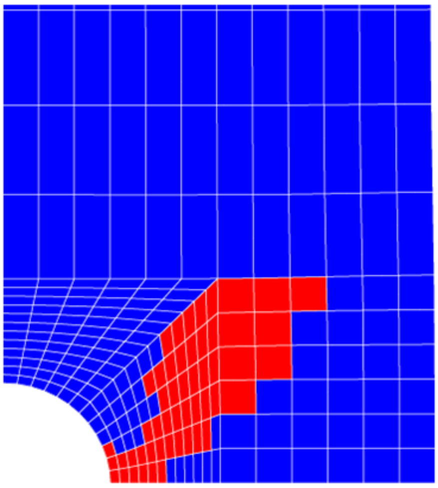
This course is recommended for engineers with experience using Abaqus.

Prerequisites:

A working knowledge of the finite element method and programming in either Fortran or C

Training duration:

2 days



LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

2.11. Introduction to Isight

Course objectives

Upon completion of this course you will be able to:

- Automate a series of functions to create a Sim-flow
- Add components to a Sim-flow
- Set up the core component
- Configure components to pass data to/from each other
- Execute a Sim-flow
- Visualize Sim-flow results
- Evaluate design alternatives
- Create a Sim-flow to capture a process, by integrating various software in the company.
- Perform Design Optimization and gain Design Space understanding by using various techniques such as DOE, Optimization, Monte Carlo etc.

Targeted audience:

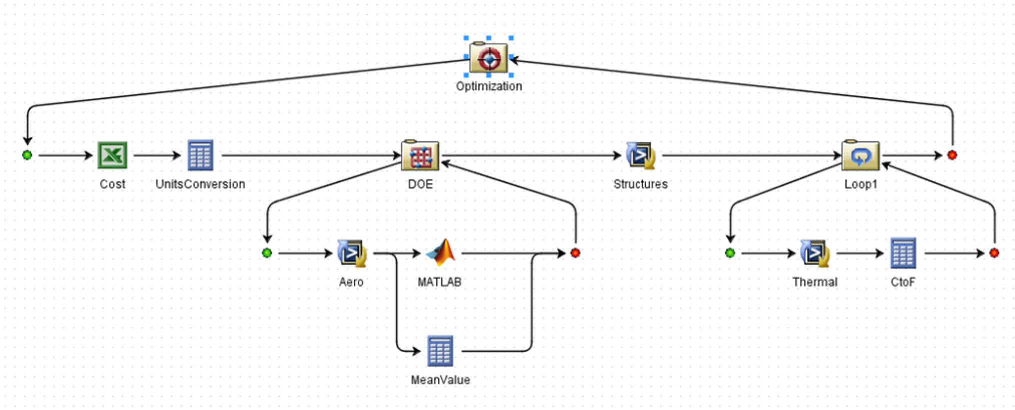
Simulation Analysts

Prerequisites:

None

Training duration:

2 days



LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

2.12. Introduction to fe-safe:

Course objectives:

Upon completion of this course you will be able to set up and run various fatigue analyses using *fe-safe*

- Set up models and import models into *fe-safe*
- Select a material for fatigue analysis
- Set up your loadings
- Run various analyses in *fe-safe*

Targeted audience:

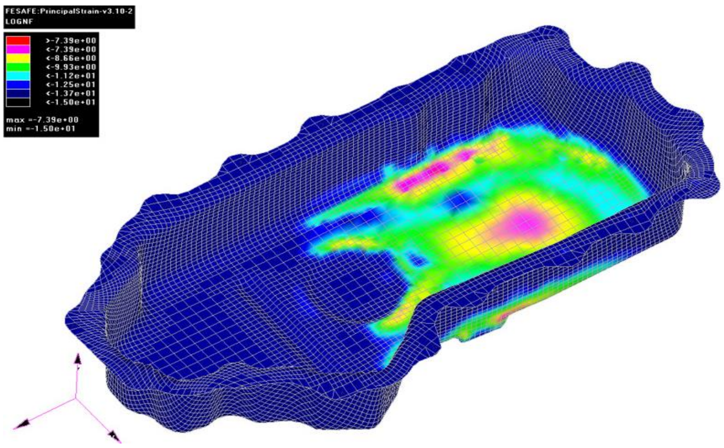
Simulation Analysts

Prerequisites:

None

Training duration:

2 days



LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE

2.13. Non-parametric optimization with Abaqus and Tosca:

Course objectives:

Upon completion of this course you will be able to:

- Apply topology, shape, sizing and bead optimization techniques to your designs and produce lightweight, strong and durable components
- Reduce iterations of designs
- Use the optimization interface in Abaqus/CAE and Tosca/Structure for setup, execution, monitoring and postprocessing of topology, shape, sizing and bead optimization problems
- Use Tosca's structural optimization capability for highly nonlinear problems

Targeted audience:

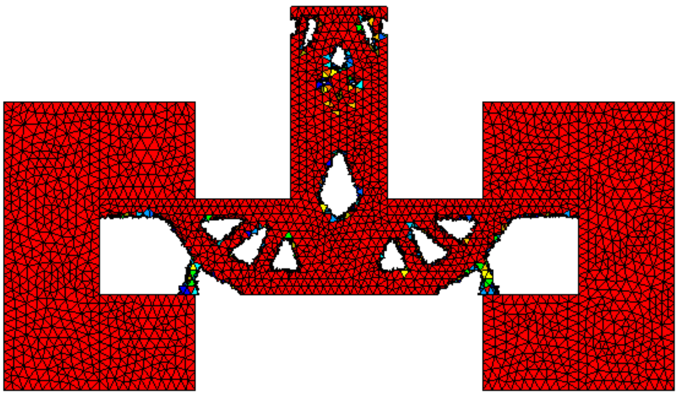
Simulation Analysts, Tosca Structure users

Prerequisites:

Basic knowledge of Tosca Structure and Abaqus/CAE

Training duration:

2 day



LaunchTech for Software and Hardware Solutions L.L.C.
www.LaunchTech.ae
Email: contact@launchtech.ae Phone: +97125627399 Address: P.O. BOX 148410, Abu Dhabi, UAE