DASSAULT SYSTEMES | The 3DEXPERIENCE® Company

Course Catalog

SIMULIA 3DEXPERIENCE COURSES

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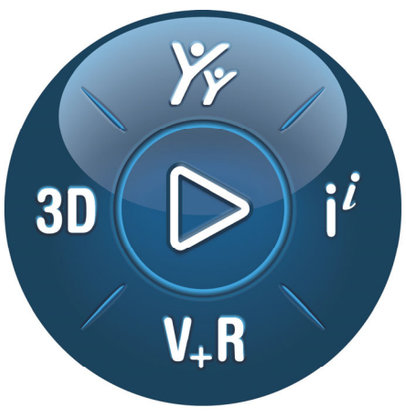

3DEXPERIENCE®

3DEXPERIENCE Simulation Primer for Abaqus/CAE Users

Course Code	SIM-en-CAEX-F-15-241
Available Releases	3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	5.42 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following roles: - Structural Engineer - Structural Performance Engineer - Structural Mechanics Engineer - Structural Analysis Engineer
Description	This course is intended to help experienced Abaqus/CAE users transition to simulation on the 3DEXPERIENCE platform. The course provides a high-level introduction to the complete simulation workflow on the 3DEXPERIENCE platform, and for each step compares back to the approach in Abaqus/CAE, allowing users to leverage their existing knowledge, whilst highlighting some key advantages of simulation on the 3DEXPERIENCE platform.
Objectives	Upon completion of this course you will be able to: - Leverage Abaqus/CAE knowledge to start to navigate the 3DEXPERIENCE platform - Understand key differences in the simulation workflow on the 3DEXPERIENCE platform - Create and run a simulation and evaluate the simulation results
Prerequisites	- None

Bookshelf: 3DEXPERIENCE Basics for Simulation	
Course Code	SIM-en-QBS-F-15-241
Available Release	3DEXPERIENCE R2024x
Duration	2 hours
Course Material	English
Level	Fundamental
Audience	This course is intended for users on the 3DEXPERIENCE platform with roles enabling desktop apps including physics simulation in the disciplines of Structures, Fluids, Electromagnetics or Motion.
Description	This course provides a selection of short standalone modules (5-10 min each) on how to install, configure, and start using the 3DEXPERIENCE desktop interface for physics simulation. Choose any module to get the help you need!
Objectives	When you reference a module, you will understand one of the topics: - Installation & Login, Requesting a Role, Where to Find Help, Importing Geometry, Material Databases, Search in the Desktop Interface, View Manipulation, Preferences in the Desktop Interface or Deleting your Data.
Prerequisites	None

Connecting CST to the 3DEXPERIENCE Platform	
Course Code	SIM-en-CSTPB-F-15-241
Available Releases	3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2024x
Duration	4.50 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following roles: - Electromagnetics Analyst - Antenna Placement Electromagnetics Engineer
Description	Throughout this course you will become familiar with the various ways of launching CST Studio Suite from within the 3DEXPERIENCE platform, the platform interface and how to perform basic tasks such as modeling, simulation setup, and reviewing the results. The course also discusses native and dashboard apps on the platform such as Simulation Manager and Optimization Process Composer. The discussion of these is tailored to electromagnetics simulations. The course also considers the creation of postprocessing templates and uploading them to the platform for DOE analysis.
Objectives	Upon completion of this course you will be able to: - Launch CST Studio Suite from the 3DEXPERIENCE platform - Understand the different connection interfaces available for CST Studio Suite - Use Simulation Manager and Optimization Process Composer for electromagnetics simulations
Prerequisites	- The following courses are required prior to taking this one: - Introduction to CST Studio Suite - Getting Started with Automation and Optimization

Design Exploration Essentials	
Course Code	SIM-en-DEXP-F-15-241
Available Releases	3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	8.42 hours
Course Material	
Level	Fundamental
Audience	- This course is intended for the following role: - Structural Generative Engineer
Description	This course is a comprehensive introduction to the structural optimization capabilities of the Design Exploration app on the 3DEXPERIENCE platform. Design exploration allows engineers to study and improve designs through topology and shape optimization, review and validate results and easily re-transfer optimized shapes into the downstream design process.
Objectives	Upon completion of this course, you will be able to: - Understand design exploration on the 3DEXPERIENCE platform - Define topology and shape design exploration studies - Validate and review the study results
Prerequisites	- The following course is required prior to taking this one: - Structural Simulation Essentials or its equivalent

Explore the Structural Performance Engineer Role	
Course Code	SIM-en-SFO-F-15-221
Available Releases	3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x
Duration	1.50 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following role: - Structural Performance Engineer
Description	This course provides an overview on the Structural Performance Engineer role on the 3DEXPERIENCE platform. A step-by-step tutorial shows a typical simulation workflow for the role. Finally, the learning path delivering detailed training on the apps provided with the role is explained.
Objectives	Upon completion of this course you will be able to: - • Understand the major capabilities of the Structural Performance Engineer role - • Access geometry on the platform - • Create a FEM model - • Create and run a simulation - • Evaluate the results
Prerequisites	None

Fluid Simulation: Advanced Topics	
Course Code	SIM-en-FMK2-A-15-241
Available Releases	3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	7.75 hours
Course Material	English
Level	Advanced
Audience	- This course is intended for all roles that enable the Fluid Scenario Creation app, including: - Fluid Dynamics Engineer - Thermal Engineer
Description	This course includes lessons and workshops covering advanced capabilities and techniques that can be included in a flow simulation using the Fluid Model Creation and Fluid Scenario Creation apps on the 3DEXPERIENCE platform.
Objectives	Upon completion of this course you will be able to: - Understand convergence issues for steady-state and transient flow procedures. - Include porous media modeling in a fluid flow analysis. - Mesh fluid and solid domains using different meshing techniques. - Configure and run simulations including compressible and/or multiphase flow.
Prerequisites	- The following course is strongly recommended prior to taking this one: - Fluid Simulation Essentials

Fluid Simulation Essentials	
Course Code	SIM-en-FMK-F-15-241
Available Releases	3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	11.17 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for all roles that enable the Fluid Scenario Creation app, including: - Fluid Dynamics Engineer
Description	This course is an introduction to solving fluid flow and conjugate heat transfer problems in the 3DEXPERIENCE platform. In this course, you will learn workflows for steady-state internal and external flow as well as Conjugate Heat Transfer (CHT) problems through the Fluid Model Creation and Fluid Scenario Creation apps.
Objectives	Upon completion of this course you will be able to: - Define fluid flow simulations in the 3DEXPERIENCE platform, including isothermal internal and external steady-state flow. - Perform fully coupled conjugate heat transfer (CHT) simulations. - Postprocess flow simulation results.
Prerequisites	- The following course is strongly recommended prior to taking this one: - Getting Started with Physics Simulation

Getting Started with Automation and Optimization	
Course Code	SIM-en-GSAO-F-15-241
Available Releases	3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	8 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following roles: - Multidisciplinary Optimization Engineer - Simulation Collaborator - Simulation Process Engineer
Description	This interactive course is intended for on-demand learning and is the prerequisite for many process automation and design optimization courses (if you are new to using the 3DEXPERIENCE platform). Using automation apps requires a baseline knowledge of how to log in to the platform, use 3DSearch to find and filter data, manage maturity of the data for collaboration. The 3DEXPERIENCE native (desktop) apps and web interfaces (including dashboards) will be introduced in this course.
Objectives	Upon completion of this course you will be able to: - Log in to the 3DEXPERIENCE platform - Search for and find your data using native and dashboard interfaces - Manage maturity of data, track revisions, and delete example data - Configure preferences and settings
Prerequisites	None

Getting Started with Physics Simulation	
Course Code	SIM-en-GSPS-F-15-241
Available Releases	3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	8.75 hours
Course Material	English
Level	Fundamental
Audience	Users on the 3DEXPERIENCE platform with roles enabling native apps including physics simulation in the disciplines of Structures, Fluids or Electromagnetics.
Description	This interactive course is intended for on-demand learning and is the prerequisite for many physics simulation courses (if you are new to using the 3DEXPERIENCE platform). Using physics simulation apps on the 3DEXPERIENCE platform requires a baseline knowledge of how to log in to the platform, use 3DSearch to find and filter data, explore the data and manage maturity for the purpose of collaboration. The 3DEXPERIENCE native (desktop) apps and web interfaces (including dashboards) will be introduced in this course.
Objectives	Upon completion of this course, you will be able to: - Search for and explore physical products and simulation objects - Manage maturity of data on the platform, track revisions, and delete example data - Configure preferences and settings
Prerequisites	None

Mechanical Scenario Creation: Advanced Topics	
Course Code	SIM-en-MECS3-A-15-241
Available Release	3DEXPERIENCE R2024x
Duration	12 hours
Course Material	English
Level	Advanced
Audience	- This course is intended for the following roles: - Structural Mechanics Engineer - Structural Analysis Engineer
Description	This course is an overview of selected advanced topics related to simulation with the Mechanical Scenario Creation app on the 3DEXPERIENCE platform. The topics are independent of each other. Thus, you may consider only those topics of interest and examine them in any order.
Objectives	Use advanced structural simulations techniques including - Riks Analysis - Submodeling - Substructures - Coupled Eulerian-Lagrangian Analysis - Smoothed Particle Hydrodynamics - Tire Analysis
Prerequisites	- Either of the following courses is required prior to taking this one: - Structural Simulation Essentials - Mechanical Scenario Creation Essentials

Parametric Design Improvement: Fluids	
Course Code	SIM-en-PDSF-F-15-241
Available Releases	3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	7.17 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for all roles that enable the Parametric Design Study and Fluid Scenario Creation apps including: - Fluid Dynamics Engineer - Thermal Engineer
Description	Design improvement studies allow engineers to find the best design while varying design parameters. Using the Parametric Design Study app, you can easily author, monitor and postprocess a parametric design improvement study based on a flow analysis. Physics simulations from which the user initiates a study are first defined and run using the Fluid Scenario Creation app.
Objectives	Upon completion of this course you will be able to: - Create a design improvement study, defining design variables and objective(s) - Perform design space checks and run the study - Monitor and review study results
Prerequisites	- An understanding of the scenario app to be used to define a simulation and analysis case is required prior to taking this course, for instance by completing: - Fluid Simulation Essentials

Parametric Design Improvement: Structural	
Course Code	SIM-en-PDSM-F-15-241
Available Releases	3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	10 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for all roles that enable the Parametric Design Study Essentials or Parametric Design Study app including: - Structural Engineer - Structural Performance Engineer - Structural Mechanics Engineer - Structural Analysis Engineer - Durability Performance Engineer Durability and Mechanics Engineer
Description	Design improvement studies allow engineers to find the best design while varying design parameters. Using the Parametric Design Study Essentials or Parametric Design Study app, you can easily author, monitor and postprocess a parametric design improvement study based on an analysis case for a single-physics simulation object or a geometrical model. Physics simulations from which the user initiates a study can be either: structural analysis case or durability analysis case.
Objectives	Upon completion of this course you will be able to: - Create a design improvement study, defining design variables and objective(s) - Perform design space checks and run the study - Monitor and review study results
Prerequisites	- An understanding of the scenario app to be used to define a simulation and analysis case is required prior to taking this course, for instance by completing one of the following: - Linear Structural Scenario Creation Essentials - Structural Simulation Essentials

Abaqus Study Essentials	
Course Code	SIM-en-ABQX-F-15-241
Available Releases	3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	2.42 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following roles: - All Physics Analyst
Description	This course is an introduction to running Abaqus simulations with the Abaqus Study app on the 3DEXPERIENCE platform. The app can be used to configure job execution options and run an Abaqus input (*.inp) file with Abaqus/Standard or Abaqus/ Explicit. Abaqus users can leverage the power of the 3DEXPERIENCE platform to manage their simulation data, collaborate across their organization, and view the results of an analysis without ever downloading the data.
Objectives	Upon completion of this course you will be able to: - Configure Abaqus Study to run in different deployment modes - Create studies to run Abaqus simulation jobs - Understand file, job, and study management on the 3DEXPERIENCE Platform - Preview simulation results in Physics Simulation Review - Share study content to collaborate with other users
Prerequisites	- The following course is required prior to taking this one: - Getting Started with Physics Simulation

Additive Manufacturing Scenario Essentials

Course Code	SIM-en-MDA-F-15-211
Available Releases	3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x
Duration	8 hours
Course Material	English
Level	Fundamental
Audience	This course is intended for the following roles: Additive Manufacturing Researcher, Additive Manufacturing Programmer
Description	This course is a comprehensive introduction to defining and performing additive manufacturing process simulations. It teaches you how to add material to the part, define laser paths, and model cooling effects during the build process in the context of thermal and thermal-stress simulations.
Objectives	Upon completion of this course you will be able to: - Generate machine build environment, support structures and scan path using the Powder Bed Fabrication application - Perform sequential thermal-structural simulations using the Additive Manufacturing Scenario application - View and evaluate simulation results
Prerequisites	Mechanical Scenario Creation Essentials

Antenna Placement Essentials	
Available Release	3DEXPERIENCE R2023x
Duration	4.17 hours
Course Material	English
Level	Fundamental
Audience	Antenna Placement Electromagnetics Engineers
Description	This course is an introduction to the Antenna Placement app on the 3DEXPERIENCE platform. It teaches you how to import antenna models from CST Studio Suite and then evaluate their installed performance at positions on a selected platform (for example, a vehicle, an aircraft, or an electronic device). Antenna placement studies help you find the best position for an antenna on the platform by providing you the results of the installed antenna's performance. The course covers the complete simulation workflow from model setup, to simulation execution and postprocessing.
Objectives	Upon completion of the course you will: - Be able to perform simulation of installed antenna(s) using the 3DEXPERIENCE platform - Import and setup of 3DXML file, simulation execution in CST, and analyzing results using widgets on the platform. - Understand the Hybrid task solver and other solvers suitable for Antenna Placement applications. - Simulate a workshop model to understand the setup and simulation of the model on 3DEXPERIENCE platform.
Prerequisites	None, but a basic knowledge of electromagnetics and antenna applications would be beneficial.

Composite Structures Simulation Essentials

Course Code	SIM-en-SCI-F-15-241
Available Releases	3DEXPERIENCE R2016x , 3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	8.75 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following roles: - Composite Structures Performance Engineer - Composite Structures Analysis Engineer
Description	Composite materials are used in many design applications because of their high stiffness-to-weight ratios. This course is an introduction to composites simulation with the Structural Scenario or Mechanical Scenario Creation apps on the 3DEXPERIENCE platform. Composite Layups and Sections are also covered, with hands-on exercises using either Structural Model Creation app or Composites Design app depending on your assigned role.
Objectives	Upon completion of this course you will be able to: - Perform simulations of composite materials
Prerequisites	- Either of the following courses is required prior to taking this one: - Structural Scenario Creation Essentials - Mechanical Scenario Creation Essentials

Connector for Abaqus/CAE	
Course Code	SIM-en-ABQPB-F-15-241
Available Releases	3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	1.25 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following role: - All Physics Analyst
Description	This short course will teach Abaqus users how to import parts and assemblies from the 3DEXPERIENCE platform into Abaqus/CAE. Once a model has been defined and the job completed in Abaqus/CAE, the results can be saved to the 3DEXPERIENCE platform for collaboration, data analysis, and postprocessing.
Objectives	Upon completion of this course you will be able to: - Import product structure in Abaqus/CAE - Save results to 3DEXPERIENCE - Import results in 3DEXPERIENCE - Open/download results from 3DEXPERIENCE - View/analyze the results using the Physics Results Explorer app
Prerequisites	- The following courses are required prior to taking this one: - Introduction to Abaqus - Getting Started with Physics Simulation

Connector for PowerFLOW: Connecting PowerDELTA and 3DEXPERIENCE

Course Code	SIM-en-PDPB-F-15-241
Available Releases	3DEXPERIENCE R2022x , 3DEXPERIENCE R2024x
Duration	2.17 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following role: - All Physics Analyst
Description	This course describes the set of tools provided by PowerDELTA to: - Save and access frames to/from the 3DEXPERIENCE platform - Update to the latest available meshes
Objectives	Upon completion of this course you will be able to: - Import a Product Structure into PowerDELTA - Save frames to the 3DEXPERIENCE platform - Open/download frames from the 3DEXPERIENCE platform
Prerequisites	- The following courses are required prior to taking this one: - Introduction to PowerDELTA - Getting Started with Physics Simulation

Connector for Simpack Essentials	
Course Code	SIM-en-SMPKPB-F-15-241
Available Releases	3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	1.25 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following role: - All Physics Analyst
Description	This course is an introduction to the interactive connector between Simpack and the 3DEXPERIENCE platform.
Objectives	Upon completion of this course you will be able to: - Save Product Structure to Simpack - Save results to the 3DEXPERIENCE platform - Open/download results from the 3DEXPERIENCE platform - Preview simulation results in the 3DPlay app - View/analyze the results using the Physics Simulation Review app - Run Simpack jobs on cloud
Prerequisites	- The following courses are required prior to taking this one: - Introduction to Simpack - Physics Simulation Review Essentials

Durability Simulation Essentials	
Course Code	SIM-en-FGA-F-15-241
Available Releases	3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	6.92 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for all roles that enable the Durability features of the Structural Scenario Creation or Mechanical Scenario Creation apps, including: - Structural Analysis Engineer - Durability Performance Engineer - Durability and Mechanics Engineer
Description	This course is an introduction to fatigue of metals on the 3DEXPERIENCE platform. Using a structural analysis that has been run in the Structural Scenario or Mechanical Scenario apps, the frames can be used to define a complex fatigue loading history. Depending on the material, the durability case can calculate either stress-life or strain-life damage, infinite life factors or FKM utilization along with other durability output. These can be used to redesign parts and assemblies in conjunction with the structural results.
Objectives	Upon completion of this course you will be able to: - Create a durability analysis case and define fatigue loading - Assign fatigue properties of materials and simulate surface roughness - Run durability simulations, review fatigue results including log of life and damage
Prerequisites	- An understanding of the Structural Scenario Creation or Mechanical Scenario Creation app is recommended prior to taking this course, for instance by completing one of the following: - Structural Simulation Essentials - Structural Scenario Creation Essentials - Mechanical Scenario Creation Essentials

Linear Structural Scenario Creation Essentials

Course Code	SIM-en-LNCS-F-15-241
Available Releases	3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	8.58 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for users with the Linear Structural Scenario Creation app, including the role: - Structural Engineer
Description	This course is an introduction to structural and thermal simulations for engineers and designers with the Linear Structural Scenario Creation app on the 3DEXPERIENCE platform. It teaches you how to solve linear structural analyses in preparation for evaluating the performance of products during the product development stage.
Objectives	Upon completion of this course you will be able to: - Create a static perturbation, frequency, linear dynamic, or steady-state thermal simulation - Apply materials and control mesh display for the finite element model - Define loads and restraints, bolt loads and contact for a simulation - Run the simulation and review the results
Prerequisites	- The following course is recommended prior to taking this one: - Structural Model Creation Essentials

Linear Structural Validation Essentials	
Course Code	SIM-en-LSDY-F-15-241
Available Releases	3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	8.67 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following role: - Structural Designer
Description	This course is an introduction to structural and thermal simulations for engineers and designers with the Linear Structural Validation app on the 3DEXPERIENCE platform. It teaches you how to solve linear structural analyses in preparation for evaluating the performance of products during the product development stage.
Objectives	Upon completion of this course you will be able to: - Search for and open simulation data in the database - Perform a structural/frequency and thermal simulations - Review simulations stored in a database and generate reports
Prerequisites	- The following course is required prior to taking this one: - Getting Started with Physics Simulation

Material Calibration Essentials	
Course Code	SIM-en-MCAL-F-15-241
Available Releases	3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	13.42 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for all roles that enable the Material Calibration app, including: - Material Calibration Engineer - Structural Mechanics Engineer - Structural Analysis Engineer
Description	An accurate means to correlate the response of the mathematical model for structural simulation to test data is important, to modeling real world performance of assemblies. This course will introduce optimization methods in the Material Calibration app used to determine optimized material values, check the goodness of fit and exported materials for use in Abaqus or 3DEXPERIENCE structural simulation.
Objectives	Upon completion you will be able to: - Import and plot material test data, configure optimization controls. - Calibrate material models with the numerical and analytical execution modes. - Create materials for physics simulation or export an Abaqus material for legacy simulation. - Use FE-based calibration with a physics simulation or an imported Abaqus input file. - Delete simulations, calibration data, or created materials.
Prerequisites	- The following course is strongly recommended prior to taking this one: - Getting Started with Physics Simulation

Mechanical Scenario Creation Essentials	
Course Code	SIM-en-MECS-F-15-241
Available Releases	3DEXPERIENCE R2016x , 3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	13.25 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following roles: - Structural Mechanics Engineer - Structural Analysis Engineer
Description	This course is an introduction to structural and thermal simulation with the Mechanical Scenario Creation app on the 3DEXPERIENCE platform. It teaches you how to solve both linear and nonlinear static and dynamics problems (including implicit dynamics and explicit dynamics procedures).
Objectives	Upon completion of this course you will be able to: - Perform structural simulations (linear and nonlinear; statics and dynamics) - Perform thermal simulations - View and evaluate simulation results
Prerequisites	- The following course is required prior to taking this one: - Structural Model Creation Essentials

Mechanical Scenario Creation: Linear Dynamics

Course Code	SIM-en-MECS2-A-15-241
Available Releases	3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	9.25 hours
Course Material	English
Level	Advanced
Audience	- This course is intended for the following roles: - Structural Mechanics Engineer - Structural Analysis Engineer
Description	This course is an introduction to linear dynamics simulation with the Mechanical Scenario Creation app on the 3DEXPERIENCE platform. It covers how to solve linear dynamics problems including natural frequency extraction, harmonic response, random response, response spectrum and model dynamic applications. It also introduces interior structural-acoustic problems and complex eigenvalue analysis.
Objectives	Upon completion of this course you will be able to: - Perform linear dynamics simulations - Perform coupled structural-acoustic simulations - View and evaluate simulation results
Prerequisites	- The following course is required prior to taking this one: - Mechanical Scenario Creation Essentials

Model Assembly Design Essentials

Course Code	SIM-en-MSAM-F-15-241
Available Releases	3DEXPERIENCE R2016x , 3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	5.33 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following roles: - Simulation Model Build Engineer - Structural Performance Engineer - Structural Mechanics Engineer - Structural Analysis Engineer - Structural Generative Engineer
Description	This course is an introduction to creating Finite Element Models (FEMs) for large and complex assemblies using the automated modeling technology in the 3DEXPERIENCE platform. The course also discusses managing the product structure for large assemblies of parts and meshes created either in the 3DEXPERIENCE platform or in 3rd-party tools.
Objectives	Upon completion of this course you will be able to: - Create external simulation representations. - Perform automated modeling
Prerequisites	- The following course is required prior to taking this one: - Structural Model Creation: Geometry and Meshing

Motion Analysis Essentials	
Course Code	SIM-en-MOTA-F-15-241
Available Releases	3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	5.58 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for designers and engineers who want to perform kinematic and dynamic analysis on mechanical systems. It requires the following role: - Motion Analyst
Description	This course is an introduction to performing multibody system simulation on the 3DEXPERIENCE platform. The Motion Analysis app enables engineers to perform kinematic and dynamic simulations to predict and optimize the motion behavior of any mechanical system.
Objectives	Upon completion of this course, you will be able to: - • Create mechanisms to understand the motion behavior of a product assembly - • Enhance mechanisms with motion specific-elements such as contact and springs - • Perform kinematic and dynamic analyses of a mechanism - • Review the results of a simulation
Prerequisites	- Some familiarity with fundamental multibody concepts - Completion of the Getting Started with Physics Simulation course

Multiscale Experiment Creation Essentials

Course Code	SIM-en-MSEC-F-15-241
Available Releases	3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	5.25 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following role: - Multidiscipline Performance Engineer
Description	This course is an introduction to performing multiscale and multiphysics simulations in the 3DEXPERIENCE platform. Multiphysics experiments involve high-precision 3D simulations such as mechanical finite element analyses, computational fluid dynamics (CFD) flow simulations, and electromagnetic simulations. You can combine two different physics domains to create a co-simulation such as a fluid-structure interaction (FSI) and conjugate heat transfer (CHT) analysis and can also include highly abstracted approximations of real-world physical behavior (logical systems usually packaged in the form of a functional mockup unit or FMU).
Objectives	Upon completion of this course you will be able to: - Set up and create models for co-simulation analysis in the 3DEXPERIENCE platform - Perform co-simulation analyses - Postprocess co-simulation analyses
Prerequisites	- The following courses are recommended: - Mechanical Scenario Creation Essentials - Fluid Dynamics Engineer Essentials

Performance Study Essentials	
Course Code	SIM-en-DISB-F-15-241
Available Releases	3DEXPERIENCE R2016x , 3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	3.33 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following roles: - Simulation Process Engineer - Multidisciplinary Optimization Engineer
Description	This course is an introduction to the lightweight web-based tool in the 3DEXPERIENCE platform that allows simulation analysts and engineers to run predefined Simulation Processes. The tool enables one to quickly search, run, and monitor existing Simulation Processes.
Objectives	Upon completion of this course you will be able to: - Instantiate Simulation Processes from Simulation Experiences - Run and monitor Simulation Processes - Manage Simulation Processes
Prerequisites	None

Performance Trade-off Essentials	
Course Code	SIM-en-PTO-F-15-241
Available Releases	3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	2.42 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following roles: - Simulation Collaborator - Simulation Process Engineer - Multidisciplinary Optimization Engineer
Description	This course is an introduction to the dashboard app in the 3DEXPERIENCE platform that allows decision makers to select the best option among the competing objectives by providing trade-off and collaborative decision-support capability.
Objectives	Upon completion of this course you will be able to: - Compare alternatives, from simulation or test datasets - Conduct trade-off analyses to select the best alternative
Prerequisites	- The following course is required prior to taking this one: - Getting Started with Automation and Optimization

Physics Results Explorer Essentials

Course Code	SIM-en-PHYR-F-15-241
Available Releases	3DEXPERIENCE R2016x , 3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	10.50 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following roles: - Fluid Dynamics Engineer - Structural Engineer - Structural Performance Engineer - Structural Mechanics Engineer - Structural Analysis Engineer - Structural Generative Engineer
Description	This course is an introduction to results visualization and postprocessing with the Physics Results Explorer app on the 3DEXPERIENCE platform. This allows designers and engineers to view and evaluate simulation results from disciplines such as structures (including composites) and fluids.
Objectives	Upon completion of this course you will be able to: - View and evaluate simulation results
Prerequisites	None

Physics Simulation Review Essentials

Course Code	SIM-en-PSR-F-15-241
Available Releases	3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	2.58 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following roles: - Simulation Collaborator - Simulation Process Engineer - Multidisciplinary Optimization Engineer - All Physics Analyst
Description	This course teaches you how to view lightweight simulation data with the Physics Simulation Review widget in the 3DEXPERIENCE platform dashboard interface. If the native apps user has generated experience content, the reviewer will be able to browse: the mesh, material assignments, scenario content (such as loads and restraints), and results. Results display can include contour plots, streamlines, sensors and charts. You can animate these lightweight results and change way objects in the plots are displayed.
Objectives	Upon completion of this course, you will be able to: - Generate experience content for the lightweight simulation viewers - Perform lightweight visualization through web browsers
Prerequisites	None

Plastic Injection Essentials	
Course Code	SIM-en-PPM-F-15-241
Available Releases	3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	8.25 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following role: - Plastic Injection Engineer
Description	This course is an introduction to performing injection molding simulation for product and design innovation on the 3DEXPERIENCE platform. The Plastic Injection app enables realistic simulation of mold filling, packing and cooling manufacturing processes. This enables decision making early in the design cycle, when the cost of design change is low and opportunity is high.
Objectives	Upon completion of this course you will be able to: - Perform injection molding simulations - View and evaluate simulation results
Prerequisites	None

Process Composer Essentials

Available Releases	3DEXPERIENCE R2016x , 3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	8.25 hours
Level	Fundamental
Audience	- This course is intended for the following roles: - Simulation Process Engineer - Multidisciplinary Optimization Engineer
Description	Automation Process Composer and Optimization Process Composer apps are apps for authoring simulation processes on the 3DEXPERIENCE platform. Such simulation processes can be used to automate simulations and capture best practices to distribute to other users in your organization. Optimization Process Composer also enables design space exploration with DOE and Optimization or reliability calculations including Monte Carlo simulation. This course is intended for users of either app. Features unique to the Optimization Process Composer app are covered in optional contents. You can choose the lessons and workshops that are useful for the role(s) assigned to you.
Objectives	Upon completion of this course you will be able to: - Automate physics simulation of design variants using geometric and other parameters. - Automate applications external to the 3DEXPERIENCE platform including calculations in Microsoft Excel®, simple calculator examples, and/or standalone executables. - Control flow of parameters between integrated simulations and external applications. - Iterate analyses with a Loop adapter, DOE or Optimization (if enabled by your role). - Understand the working directory and working files necessary for automation. - Open a job in the Performance Study or Results Analytics dashboard apps. - Run your job with cloud or remote resources (if enabled by the available roles and licensing).
Prerequisites	- The following course is required prior to taking this one: - Getting Started with Automation and Optimization

Process Experience Studio Essentials

Course Code	SIM-en-EXPS-F-15-241
Available Releases	3DEXPERIENCE R2016x , 3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	2.25 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following roles: - Simulation Process Engineer - Multidisciplinary Optimization Engineer
Description	This course is an introduction to the Process Experience Studio widget on the 3DEXPERIENCE platform. Process Experience Studio allows engineers to create custom interfaces for distributing simulation processes and simulation templates throughout the organization. This widget is similar to a form builder which allows the engineer to develop a simple or complex interface of inputs and outputs to/from the process. Using the widget in a dashboard provides a way to collaborate in teams around process integration and automation.
Objectives	Upon completion of this course you will be able to: - Produce simulation templates to distribute processes - Create one-click or custom user interfaces
Prerequisites	- The following course is required prior to taking this one: - Getting Started with Automation and Optimization

Results Analytics Essentials

Course Code	SIM-en-REII-F-15-241
Available Releases	3DEXPERIENCE R2016x , 3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	7 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following role: - Multidisciplinary Optimization Engineer
Description	This course is an introduction to the integrated web-based tool in the 3DEXPERIENCE platform that allows decision makers to collaboratively choose the best design from a large pool of data. This tool allows one to view and conduct trade-off analyses. The course is divided into lectures and workshops. The course's workshops are integral to the training. They are designed to reinforce concepts presented during the lectures. They are intended to provide users with the experience of running and trouble-shooting actual simulations.
Objectives	Upon completion of this course you will be able to: - Initialize an analytics case - Conduct trade-off analyses - Select the best alternative
Prerequisites	- The following course is required prior to taking this one: - Getting Started with Automation and Optimization

Simulation Companion Essentials	
Course Code	SIM-en-COMP-F-15-211
Available Releases	3DEXPERIENCE R2016x , 3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x
Duration	3.42 hours
Course Material	English
Level	Fundamental
Audience	This course is intended for the Simulation Asset Management role.
Description	This course is an introduction to the light weight web-based tool in the 3DEXPERIENCE Platform that allows methods developers and engineers to quickly test and create ad-hoc simulation processes. This app provides tools and infrastructure to run a program and manage both the input and output data.
Objectives	Upon completion of this course you will be able to: - Complete basic ad-hoc simulation workflows using Simulation Companion - Set up a 3DDashboard experience for conducting ad-hoc simulation workflows - Initialize and manage a new ad-hoc simulation workflow - Configure and run simulation tools - Manage Simulation Companion processes
Prerequisites	None

Simulation Manager Essentials

Course Code	SIM-en-SMGE-F-15-241
Available Releases	3DEXPERIENCE R2024x,
Duration	6.92 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for all simulation roles.
Description	This course is an introduction to the Simulation Manager app on the 3DEXPERIENCE platform, enabling analysts to run, monitor, and manage simulations on the cloud, for analyses created using traditional SIMULIA products, such as Abaqus, CST, Simpack, PowerFLOW, XFlow, and Wave6.
Objectives	Upon completion of this course you will be able to: - View and Manage simulations - Submit a simulation on the cloud - Monitor details as a simulation is running - View and download data associated with the simulation - Access simulation results
Prerequisites	None

Simulation Model Design Essentials

Course Code	SIM-en-SML-F-15-241
Available Releases	3DEXPERIENCE R2016x , 3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	6.92 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following roles: - Structural Analysis Engineer - Structural Generative Engineer - Composite Structures Analysis Engineer
Description	This course is an introduction to creating and assembling geometry in the 3DEXPERIENCE Platform. The focus is on techniques relevant to simulation.
Objectives	Upon completion of this course you will be able to: - Create basic native solid, shell and wireframe geometry. - Create assemblies of parts.
Prerequisites	- The following course is required prior to taking this one: - Getting Started with Physics Simulation

Simulation Scripting Essentials	
Course Code	SIM-en-VBAUTO-F-15-241
Available Releases	3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	38.25 hours
Course Material	English
Level	Fundamental
Audience	This course is intended for users with any role that enables the Structural Scenario Creation or Mechanical Scenario Creation app.
Description	Automation in the 3DEXPERIENCE platform is a powerful solution available for various domains and provides a complete set of dedicated APIs which allows users to create, model and execute the multiphysics simulations. The course starts with the basics of VB programming and then covers automation for basic 3DEXPERIENCE platform operations, geometric modelling, materials, mesh, simulation scenarios, simulation execution and postprocessing. The course also covers GUI customization using VB for building the graphical user interface and the SIM Python API for reading/writing the SIM files.
Objectives	Upon completion of this course you will be able to: - Understand 3DEXPERIENCE foundation concepts - Use the 3DEXPERIENCE native apps automation environment and documentation - Automate 3DEXPERIENCE native applications using Visual Basic
Prerequisites	- The following are is recommended prior to taking this course: - Completing the Structural Simulation Essentials training course (or equivalent) - Existing knowledge of VB scripting

Structural Model Creation Essentials	
Course Code	SIM-en-MECM-F-15-241
Available Releases	3DEXPERIENCE R2016x , 3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	9.58 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for all roles that enable the Structural Model Creation app, including: - Structural Engineer - Structural Performance Engineer - Structural Mechanics Engineer - Structural Analysis Engineer
Description	This course is an introduction to finite element modeling with the Structural Model Creation app on the 3DEXPERIENCE platform. It teaches you how to prepare Finite Element Models for simulation. This includes meshing, material assignment and section properties, and defining connections or rigid bodies.
Objectives	Upon completion of this course you will be able to: - Create complete Finite Element Models for structural and thermal simulations - Define meshes including solid, shell/surface and beam elements - Mesh checking and element/node groups - Create materials and properties - Define connectors, virtual bolts, fasteners, rigid bodies and analytical rigid surfaces (ARS)
Prerequisites	- The following course is strongly recommended prior to taking this one: - Getting Started with Physics Simulation

Structural Model Creation: Geometry and Meshing

Course Code	SIM-en-MECM2-A-15-241
Available Releases	3DEXPERIENCE R2016x , 3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	15.83 hours
Course Material	English
Level	Advanced
Audience	- This course is intended for the following roles: - Structural Engineer - Structural Performance Engineer - Structural Mechanics Engineer - Structural Analysis Engineer
Description	This course provides in-depth treatment of cleaning/ repairing geometry for generating high quality Finite Element Models with the Structural Model Creation app on the 3DEXPERIENCE platform. It provides a comprehensive discussion on meshing relevant to structural simulation, including surface meshing, partitioning, rule-based meshing, transformation meshing, importing meshes and checking meshes.
Objectives	Upon completion of this course you will be able to: - Clean and repair native and imported geometry. - Use advanced meshing techniques.
Prerequisites	- The following course is required prior to taking this one: - Structural Model Creation Essentials

Structural Scenario Creation Essentials	
Course Code	SIM-en-EMCS-F-15-241
Available Releases	3DEXPERIENCE R2016x , 3DEXPERIENCE R2017x , 3DEXPERIENCE R2018x , 3DEXPERIENCE R2019x , 3DEXPERIENCE R2020x , 3DEXPERIENCE R2021x , 3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	13.75 hours
Course Material	English
Level	Fundamental
Audience	- This course is intended for the following role: - Structural Performance Engineer
Description	This course is an introduction to structural and thermal simulation with the Structural Scenario Creation app on the 3DEXPERIENCE platform. It teaches you how to solve both linear and nonlinear static problems and basic linear dynamics problems.
Objectives	Upon completion of this course, you will be able to: - Perform structural simulations (linear and nonlinear; statics and dynamics) - Perform thermal simulations - View and evaluate simulation results
Prerequisites	- The following course is required prior to taking this one: - Structural Model Creation Essentials

Quickstart: Structural on the 3DEXPERIENCE Platform	
Course Code	SIM-en-QST-F-15-241
Available Release	3DEXPERIENCE R2024x
Duration	2 hours
Course Material	English
Level	Fundamental
Audience	This course is intended for all types of learners who are interested in performing structural simulation on the 3DEXPERIENCE platform.
Description	This course provides a hands-on introduction to the structural simulation capabilities on the 3DEXPERIENCE platform. It provides a quick start to simulation model and scenario definition, analysis and postprocessing.
Objectives	After completing this course, you will be able to: Navigate the 3DEXPERIENCE platform; review an existing simulation; explore key components of the user interface; understand the major features of a simulation; define, run and postprocess a structural simulation on your own.
Prerequisites	A basic understanding of Finite Element Analysis is recommended but not required.

Quickstart: Durability Simulation on the 3DEXPERIENCE Platform

Course Code	SIM-en-QDR-F-15-241
Available Release	3DEXPERIENCE R2024x
Duration	1.50 hours
Course Material	English
Level	Fundamental
Audience	This course is intended for all types of learners who are interested in performing durability simulation on the 3DEXPERIENCE platform. To complete the final (capstone) exercise, the user needs a role enabling durability analysis (see Details for applicable roles).
Description	This course provides a hands-on introduction to the durability features of the Structural Scenario Creation and Mechanical Scenario Creation apps on the 3DEXPERIENCE platform. It provides a quick start to fatigue loading definition, fatigue properties of materials, fatigue analysis and postprocessing.
Objectives	After completing this course, you will be able to: - Navigate the 3DEXPERIENCE platform; identify key components of the user interface; understand the features of a durability analysis case; define, run and postprocess a durability simulation on your own.
Prerequisites	A basic understanding of metal fatigue and loading for durability is recommended but not required. Users do not need access to an installation of the 3DEXPERIENCE platform until the final module. For assistance with installation and login, review the resources in the course Bookshelf: 3DEXPERIENCE Basics for Simulation.

Quickstart: Motion and Multibody Simulation on the 3DEXPERIENCE Platform	
Course Code	SIM-en-QMB-F-15-241
Available Release	3DEXPERIENCE R2024x
Duration	2 hours
Course Material	English
Level	Fundamental
Audience	This course is intended for all types of learners who are interested in performing multibody simulation on the 3DEXPERIENCE platform. To complete the final (capstone) exercise, the user needs a role enabling multibody analysis (see Details for applicable roles).
Description	This course provides a hands-on introduction to the multibody features of the Motion Engineering, Motion Analysis and Suspension Analysis apps on the 3DEXPERIENCE platform. It provides a quick start to mechanism creation, multibody model element definition and postprocessing.
Objectives	After completing this course, you will be able to: Navigate the 3DEXPERIENCE platform; identify key components of the user interface; understand the features of a motion simulation; define, run and postprocess a multibody simulation on your own.
Prerequisites	A basic understanding of fundamental multibody concepts is recommended but not required. Users do not need access to an installation of the 3DEXPERIENCE platform until the final module. For assistance with installation and login, review the resources in the course Bookshelf: 3DEXPERIENCE Basics for Simulation.

Structural Simulation: Heat Transfer and Thermal Stress Analysis

Available Releases	3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	13.25 hours
Course Material	English
Level	Advanced
Audience	- This course is intended for all roles that enable the Structural Scenario Creation and Mechanical Scenario Creation apps, including: - Structural Performance Engineer - Structural Mechanics Engineer - Structural Analysis Engineer - Structural Generative Engineer
Description	The success of many structural designs requires a thorough understanding of both the thermal and mechanical response of the design. Temperature-dependent material properties, thermally-induced deformation, and temperature variations all may be important design considerations. This course introduces you to the heat transfer and thermal-stress capabilities available within 3DEXPERIENCE. Practical examples and workshops are used to illustrate these capabilities.
Objectives	Upon completion of this course you will be able to: - Perform steady-state and transient heat transfer simulations - Perform sequentially-coupled, fully-coupled and adiabatic thermal-stress analyses - Model contact in heat transfer problems
Prerequisites	- Structural Simulation Essentials (or equivalent)

Structural Simulation Essentials	
Course Code	SIM-en-STRSIM-F-15-241
Available Releases	3DEXPERIENCE R2022x , 3DEXPERIENCE R2023x , 3DEXPERIENCE R2024x
Duration	18.67 hours
Course Materials	English , Japanese
Level	Fundamental
Audience	- This course is intended for all roles that enable the Structural Scenario Creation and Mechanical Scenario Creation apps, including: - Structural Performance Engineer - Structural Mechanics Engineer - Structural Analysis Engineer
Description	This course is an introduction to structural simulation on the 3DEXPERIENCE platform using the Structural Scenario Creation or Mechanical Scenario Creation app. The basics of Finite Element Modeling with the Structural Model Creation app and post processing with the Physics Results Explorer app are included to provide an end-to-end view of the simulation process. You can use geometry imported/created on the 3DEXPERIENCE platform or designed with SOLIDWORKS.
Objectives	Upon completion of this course you will be able to: - Create complete Finite Element models for structural and thermal simulations - Perform structural (linear and nonlinear; statics and dynamics) and thermal simulations - View and evaluate simulation results
Prerequisites	- The following course is strongly recommended prior to taking this one: - Getting Started with Physics Simulation

Test Management Essentials	
Course Code	SIM-en-VRP-F-15-241
Available Releases	3DEXPERIENCE R2024x
Duration	8 hours
Course Materials	English
Level	Fundamental
Audience	- This course is intended for the following role: - - Test Manager
Description	The Test Manager role enables the apps on the 3DEXPERIENCE platform that teams use to build a validation plan, record the steps an operator needs to know to carry out a virtual or physical test and record whether requirements are met. This course introduces each app used by the various team members to store data for the purposes of traceability. The tests being tracked can be anything: from physical lab tests to simulations of physical functional or logical systems.
Objectives	Upon completion of this course you will be able to: - - Create a dashboard to track your team's validation plan - - Create reusable test scripts in the V&V Library app - - Add test steps to the script to give instructions for the test operator - - Create Test Specifications, Test Cases and Test Executions for your project or design team in the V&V Strategy app - - Create Test Results and upload Evidence in the Test Results Capture app - - Change the maturity of the content on the 3DEXPERIENCE platform to enable collaboration and storage of the data - - Review the links between content on the 3DEXPERIENCE platform to understand the digital thread
Prerequisites	Familiarity with the web interface of the 3DEXPERIENCE platform is recommended. Alternatively, completing the installation, login and 3DSearch units of following course is recommended prior to taking this one: - - Getting Started with Automation and Optimization

Thermal-Electrochemical-Stress Simulation of Li-ion Batteries

Course Code	SIM-en-STRBT-A-15-241
Available Release	3DEXPERIENCE R2024x
Duration	9.75 hours
Course Material	English
Level	Advanced
Audience	- This course is intended for the following roles: - Structural Mechanics Engineer - Structural Analysis Engineer
Description	This course introduces cell-level multiscale, multiphysics analysis of the electrochemical performance of Li-ion batteries based on porous electrode theory. The thermal effects from various losses (associated with the ionic diffusion, electrical conduction, entropy change and intercalation) and the mechanical effects due to lithiation-induced swelling are considered in a fully coupled manner.
Objectives	Upon completion of this course, you will be able to: - Define material properties for Li-ion batteries - Perform battery electrochemical analyses - Define contact and constraints - Postprocess Li-ion battery analyses
Prerequisites	- The following course is required prior to taking this one: - Structural Simulation Essentials (or its equivalent)


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