STRUCTURAL MECHANICS ENGINEER
3DEXPERIENCE USER ROLE

VALIDATE YOUR SOLIDWORKS 3D DESIGNS WITH CONFIDENCE USING THE INDUSTRY-PROVEN ABAQUS STRUCTURAL SIMULATION TECHNOLOGY ON THE 3DEXPERIENCE PLATFORM.

With Structural Mechanics Engineer, a part of the **3D**EXPERIENCE® Works simulation portfolio, you can perform complex linear and non-linear analysis under realistic conditions to intuitively validate designs and make product decisions faster. Speed up new product delivery by enabling real-time collaboration and data sharing with a unique engineering experience.

Structural Mechanics Engineer helps your engineering teams solve complex problems using superior mechanical simulation methodologies to predict, validate and improve product behavior within the **3D**EXPERIENCE platform. It enables you to conduct structural linear and nonlinear static, low and high-speed dynamic, thermal, and internal acoustic simulation of product designs using the state-of-the-art Abaqus simulation technology. Structural Mechanics Engineer also provides material calibration capabilities to ensure relevant material model selection and accurate material behavior modeling.

KEY CAPABILITIES

Provide a Robust Engineering Workflow Fully Associative with SOLIDWORKS® 3D CAD

- Connecting* SOLIDWORKS 3D CAD to the cloud-based **3D**EXPERIENCE platform enables your team to save and manage your SOLIDWORKS geometry on the platform directly from SOLIDWORKS and share it through a browser

- Once on the platform, you can easily test SOLIDWORKS geometries with Structural Mechanics Engineer relying on full simulation associativity for best-in-class designs simulation workflows

- Enable traceable revisions of what-if scenarios for efficient engineering workflows.
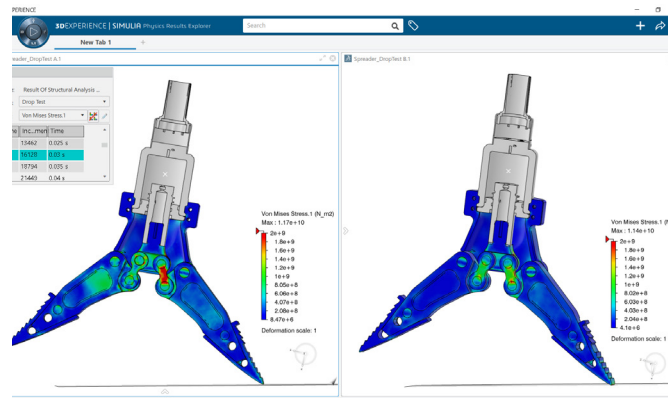
Solve Complex Engineering Problems

- Enable your engineering team to conduct a large variety of analysis procedures (linear and nonlinear static, nonlinear implicit and explicit dynamic, frequency, thermal, and more) to ensure validation accuracy and robustness

- Use implicit and explicit methods to cover a very wide range of structural simulation applications such as drop tests, impacts, crash, snap fits, gasket compression and pre-loaded bolted assemblies

- Efficiently handle large displacements, large rotations and large strain, improving simulation accuracy. Simulate multiple and sequential load cases to represent exactly the real loading conditions.

Offer a Productive Meshing and Modeling Environment

- Use reliable contact detection capability to ensure accurate interactions prediction even on large models

- Enable users to simulate any type of geometry with reliable meshing tools (beam, shell, or solid including tetrahedron and brick elements) and improve pre-processing efficiency

- Use the large material models library to define the right behavior (including non-linear behavior such as hyper-elasticity or plasticity) and ensure simulation fidelity

- Standardize and democratize your simulation workflows enabling experts to easily customize the user interface and guide non-experts or first-time users through the simulation workflow.

Structural Mechanics Engineer helps you easily compare results between design alternatives so you can make informed decisions.

Empower Engineers with Intuitive and Comprehensive Results Investigation Experience

- Enable high-performance results visualization, particularly for very large models including realistic rendering

- Facilitate collaborative decision making across the organization using online dashboards to review, compare, and perform tradeoffs between design alternatives

- Run simulation computations on multiple cores either on a local computer or remotely on the cloud* to free up local machines for other work.

Capabilities of the 3DEXPERIENCE Platform for Structural Mechanics Engineers

Structural Mechanics Engineer is powered by the **3D**EXPERIENCE platform enabling your organization to efficiently manage all facets of your product development process while reducing infrastructure costs, IT overhead, software maintenance and complexity. Your teams can take advantage of the following platform capabilities:

- Securely view, share, annotate, discuss and manage designs and simulation data from anywhere, at any time and on any device with a web browser.

- Collaborate with all internal and external team members through cloud-based dashboards, messaging, activity streams, communities and drag-and-drop task management.

* Might require additional roles.

Our **3D**EXPERIENCE® platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3D**EXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 250,000 customers of all sizes in all industries in more than 140 countries. For more information, visit **www.3ds.com**.

3DEXPERIENCE®

DS DASSAULT SYSTEMES | The **3D**EXPERIENCE® Company