

Learning Module

Fatigue of Welds in Fe-safe

This 1-day course provides a focused discussion on simulating the number of cycles till fatigue failures at welds in welded structures. The methods are based on predicting a crack through a certain thickness, in welded structures at the welds (toe, root, throat, etc. failure mechanisms in welds can be included). Both classification methods (such as BS5400 and BS7608) and structural stress methods (such as the Verity® module in fe-safe) will be covered.

Objectives

Set up and run various weld fatigue analyses using fe-safe including.

Understand modeling requirements for line welds and spot welds.

Understand the background of the supported weld fatigue methods.

Set up FEA models for weld fatigue and import results into fe-safe.

Use BS5400 Weld Finite Life algorithm in fe-safe.

Define weld lines for structural stress calculations.

Use the Verity® module in fe-safe based on structural stress calculations.

Select a material for fatigue analysis using structural stress methods.

Run weld methods and/or base metal fatigue simultaneously.

Postprocess weld fatigue in fe-safe and using a viewer.

Knowledge Prerequisites

Introduction to fe-safe.

Brands

Simulia

Available Releases

SIMULIA 2021, SIMULIA 2020,
SIMULIA 2019, SIMULIA 2017

Duration

8 hours

Discipline

Fe-safe

Language(s) for selected release

English

Contents

Overview - Fatigue of Welds in fe-safe®

1 - Overview of Weld Fatigue

2 - Using BS5400 in fe-safe

3 - Structural Stress for Weld Fatigue in fe-safe

4 - Modeling for Structural Stress Methods

5 - Modeling for Structural Stress Methods with Solid Elements

6 - Spot Weld Fatigue in fe-safe®

A1 - References