

Learning Module

Writing User Subroutines with Abaqus

This course explains when to consider the use of such user subroutines and how to approach their development. Detailed descriptions are given of the data required for these subroutines, the additional statements to be included and the variables that are available within the routine. Particular attention is paid to highlighting good practice in user subroutine development.

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 userdefined elements.

Knowledge Prerequisites

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

Brands

Simulia

Available Releases

SIMULIA 2021, SIMULIA 2020, SIMULIA 2019, SIMULIA 2018, SIMULIA 2017, SIMULIA 2016, SIMULIA V6.14, SIMULIA V6.13, SIMULIA V6.12

Duration

16 hours

Discipline

Advanced Abaqus

Language(s) for selected release

English

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Overview - Writing User Subroutines with Abaqus

1 - Introduction

2 - User Subroutines (V)DLOAD and UTRACLOAD

3 - User Subroutine FILM

4 - User Subroutine (V)USDFLD

5 - User Subroutine UVARM

6 - User Subroutines UHYPER and UHYPER_STRETCH

7 - Writing a UMAT or VUMAT

8 - Creating a Nonlinear User Element

Appendices