Z-SET

Z-mat Connection to External Finite Element Solvers

Z-mat includes several pieces of software which constitute an efficient set of tools for advanced material-oriented FE analysis. In this course, you will learn advanced Z-mat's material models used within major Finite Elements solvers.

This one-day training session provides basic knowledge about the use of Z-mat and major external FE solvers like Abaqus, Ansys and Samcef, and a large base of constitutive plasticity and viscoplasticity models.
Participants will discover the technical aspects, available tools and options of the Z-mat's interface.

In addition, the results interfaces that enable the use of Z-master and Z-post modules for visualization and data post-processing will be presented.

LEVEL

Beginner

PREREQUISITES

A good basic knowledge of User Material Modeling is required.

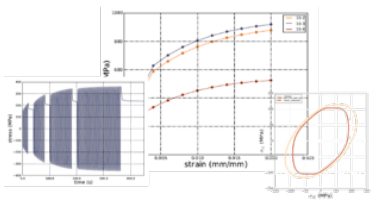
GOALS

- **Understanding of User Material subroutine principles**
- **Setup of simulations with linear and non-linear material models**
- **Launching computations**
- **Visualization, interpretation and analysis of results**

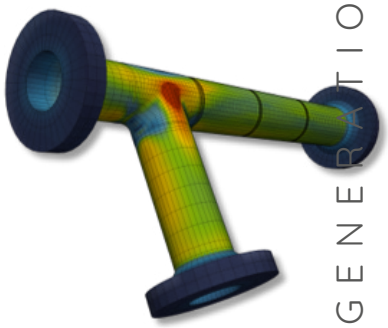
TRAINING	DURATION	PRICE EXCL. TAX	PARTICIPANTS
In-company	1 day	€1400 per training	1 to 3 people

DAY 1 > 8.30 a.m. to 12.00 p.m. & 1.30 p.m. to 5.00 p.m.

Introduction	▪ Presentation of Transvalor ▪ Course goals
Simulation workflow & setup	▪ Quick review of software installation (Linux, Windows), environment variables, connection to external FE solvers ▪ Presentation of Z-set's distribution (documentation, tests base) ▪ Getting started: native material model vs user material model ▪ Examples of basic Z-mat's material models ▪ Z-sim: material model driver ▪ Internal variables, storage, Zpreload utility, 2D/3D cases ▪ Setup with Z-mat or external FE solvers ▪ Analysis of tutorials
Computation	▪ Simulation launching scripts ▪ Multicore execution
Results analysis	▪ Results files ▪ Understanding of stored fields ▪ Results visualization with native viewers and Z-master
Advanced capabilities	▪ Advanced controls and options (integrators, modifiers, debug) ▪ Multi-material models ▪ Structural elements, plane-stress analysis ▪ Cluster submission ▪ Connection to Z-post (simple post-processing example)
Conclusions	▪ Questions and course assessment



Constitutive laws



Tube connections under thermomechanical fatigue (collaboration with EDF)