

DYNA4 Fundamentals

Agenda VectorAcademy

Delivery Format:	This course is offered as a series of Remote Training sessions or in Classroom Format The course content can be customized from listed agenda items (sessions) according to customer requirements. Combination with DYNA4 Vehicle Model and DYNA4 Engine courses items is possible.
Duration:	1 - 4 days (Classroom), depending on selected items (sessions), customer specific for Remote Training
Target Group:	Application Engineers in the field of model-based vehicle and environment simulation (vehicle dynamics, ADAS, HEV, BEV, Engine ECU function development and test)
Prerequisites:	Knowledge of Matlab / Simulink for model extensions
Goal:	Efficient use of the software, capability to prepare and run a simulation, Manage all data within the simulation project, Parameterize the vehicle model and define test scenarios, Run automated simulations, analyze and visualize simulation results, Extend and modify supplied simulation models in Simulink, Understand supplied library functions for working with the Simulink model, Use DYNA4 with CANoe and in real-time environments.

1. DYNA4 Overview: Architecture, Model Features, GUI 2.0 h

- > Modular Implementation in Simulink
- > Component models of different levels of detail for vehicle model and driving environment
- > GUI structure and basic software operation
- > Exercise

2. Definition of Model Parameters, Data Management 2.0 h

- > Model data structure
- > DYNA4 database and Simulation Projects
- > Using GUI functions for parameter editing and data management
- > Working with vehicle model data
- > Exercise

3. Definition of Test Scenarios 4.0 h

- > Result data selection, signal alias map
- > Environment definition (road)
- > Vehicle control definition (maneuvers)
- > Traffic definition
- > Exercises

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4. Execution of Simulations and Task Automation 3.0 h

- > Execution of single scenarios
- > Automated simulation runs
- > API functions
- > Exercise

5. Visualization and Analysis of Simulation Results with DYNAanimation and Plot GUI 3.0 h

- > Viewing Results in DYNA4 Result Perspective
- > Generating structured Result Overviews and Reports with Plot GUI
- > Run-Time animation with DYNAanimation
- > Exercises

6. Simulink Model Setup 1.5 h

- > Components and Modules of the DYNA4 simulation model
- > Signal routing
- > DYNAdatabase reference models

7. User specific Model Modification 3.5 h

- > Creating a custom simulation model using supplied model components
- > Procedure to exchange model components
- > Setup and integration of user-defined model parts (modules and components) in the simulation model
- > Exercises

8. DYNA4 Library functions 1.0 h

- > Sensor
- > Trace Marker
- > Road Info
- > Interface Block for signal routing

9. Setup of real-time simulation / CANoe simulation 2.0 h

- > Setup of DYNA4 in a CANoe environment
- > Setup of DYNA4 for supported real-time environments