

# Code Generation for AUTOSAR Software Components

## Prerequisites

*Simulink for System and Algorithm Modeling* (or *Simulink for Automotive System Design* or *Simulink for Aerospace System Design*) and *Embedded Coder for Production Code Generation*. Knowledge of C programming language and the AUTOSAR standard.

### Day 1 of 1

<b>Importing AUTOSAR Software Components</b>	<p><b>Objective:</b> Import existing ARXML files to automatically generate Simulink models with correct architecture and interfaces.</p> <ul style="list-style-type: none"><li>AUTOSAR XML description</li><li>Importing AUTOSAR software components</li><li>Array and enumeration data types</li><li>Adding functionality to generated Simulink models</li><li>Simulation with a harness model</li><li>AUTOSAR code generation</li><li>Structure and fixed-point data types</li></ul>
<b>Export AUTOSAR Software Components</b>	<p><b>Objective:</b> Configure Simulink models as AUTOSAR Software Components, and define AUTOSAR ports and interfaces for ARXML generation.</p> <ul style="list-style-type: none"><li>Creating a Simulink model</li><li>Creating AUTOSAR Components</li><li>Mapping Simulink model objects to AUTOSAR software components</li><li>Generating code and exporting ARXML files</li></ul>
<b>Communication: Ports and Interfaces</b>	<p><b>Objective:</b> Configure Simulink Inport and Outport blocks as various types AUTOSAR ports.</p> <ul style="list-style-type: none"><li>AUTOSAR Ports and Interfaces overview</li><li>Modeling Sender-Receiver Communication</li><li>Modeling AUTOSAR Software Component Modes</li><li>Modeling Client-Server communication</li></ul>
<b>Events</b>	<p><b>Objective:</b> Model periodic and non-periodic AUTOSAR events in Simulink models.</p> <ul style="list-style-type: none"><li>AUTOSAR Events overview</li><li>Simulating events in Simulink models</li><li>Modeling AUTOSAR Timing events</li><li>Modeling AUTOSAR Data-Received events</li><li>Modeling AUTOSAR Mode-Switch events</li></ul>
<b>Memory Access</b>	<p><b>Objective:</b> Specify AUTOSAR calibration parameters in a Simulink model using data objects.</p> <ul style="list-style-type: none"><li>Configuring AUTOSAR calibration parameters provided by Parameter Software Components</li><li>Specifying internal shared and private calibration parameters</li></ul>

