

## Simulink Fundamentals for Automotive Applications

OEM: MathWorks • Duration: 2 Days (16 hrs) • Code: MW-SIMULINK-FUNDAMENTALS-FOR-AUTOMOTIVE-

### COURSE MODULES & TOPICS

#### Day 1 of 2

##### Creating and Simulating a Model

- Introduction to the Simulink interface
- Potentiometer system
- Generating and visualizing signals
- Simulation and analysis
- Solver behavior
- Algebraic loops

##### Modeling Programming Constructs

- Comparisons and decision statements
- Actuator logic system
- Zero crossings
- MATLAB Function block

##### Modeling Discrete Systems

- Discrete signals and states
- PI controller system
- Discrete transfer functions and state-space systems
- Multirate discrete systems

##### Modeling Continuous Systems

- Continuous states
- Throttle system
- Physical boundaries
- Continuous transfer functions and state-space systems
- Simulation speed and accuracy

#### Day 2 of 2

##### Developing Model Hierarchy

- Ports and subsystems
- Masks
- Vector and bus signals

## **Modeling Conditionally Executed Algorithms**

- Conditionally executed subsystems
- Enabled subsystems
- Triggered subsystems
- Input validation model

## **Referencing Model Components**

- Referencing workflows
- Subsystem referencing
- Model referencing
- Root-level inputs and outputs
- Model workspace
- Model reference simulation modes
- Model dependencies

## **Creating Libraries**

- Creating and populating libraries
- Managing library links
- Adding a library to the Simulink Library Browser