

Simulink for System and Algorithm Modeling

Prerequisites

MATLAB Fundamentals

Day 1 of 2

Creating and Simulating a Model	<p>Objective: Create a simple Simulink model, simulate it, and analyze the results.</p> <ul style="list-style-type: none">Introduction to the Simulink interfacePotentiometer systemSystem inputs and outputsSimulation and analysis
Modeling Programming Constructs	<p>Objective: Model and simulate basic programming constructs in Simulink.</p> <ul style="list-style-type: none">Comparisons and decision statementsVector signalsPWM conversion systemZero crossingsMATLAB Function block
Modeling Discrete Systems	<p>Objective: Model and simulate discrete systems in Simulink.</p> <ul style="list-style-type: none">Discrete signals and statesPI controller systemDiscrete transfer functions and state-space systemsMultirate discrete systems
Modeling Continuous Systems	<p>Objective: Model and simulate continuous systems in Simulink.</p> <ul style="list-style-type: none">Continuous statesThrottle systemContinuous transfer functions and state-space systemsPhysical boundaries

Day 2 of 2

Solver Selection	<p>Objective: Select a solver that is appropriate for a given Simulink model.</p> <ul style="list-style-type: none">Solver behaviorSystem dynamicsDiscontinuitiesAlgebraic loops
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<p>Developing Model Hierarchy</p>	<p>Objective: Use subsystems to combine smaller systems into larger systems.</p> <ul style="list-style-type: none"> Subsystems Bus signals Masks
<p>Modeling Conditionally Executed Algorithms</p>	<p>Objective: Create subsystems that are executed based on a control signal input.</p> <ul style="list-style-type: none"> Conditionally executed subsystems Enabled subsystems Triggered subsystems Input validation model
<p>Combining Models into Diagrams</p>	<p>Objective: Use model referencing to combine models.</p> <ul style="list-style-type: none"> Subsystems and model referencing Model referencing workflow Model reference simulation modes Model workspaces Model dependencies
<p>Creating Libraries</p>	<p>Objective: Use libraries to create and distribute custom blocks.</p> <ul style="list-style-type: none"> Creating and populating libraries Managing library links Adding a library to the Simulink Library Browser