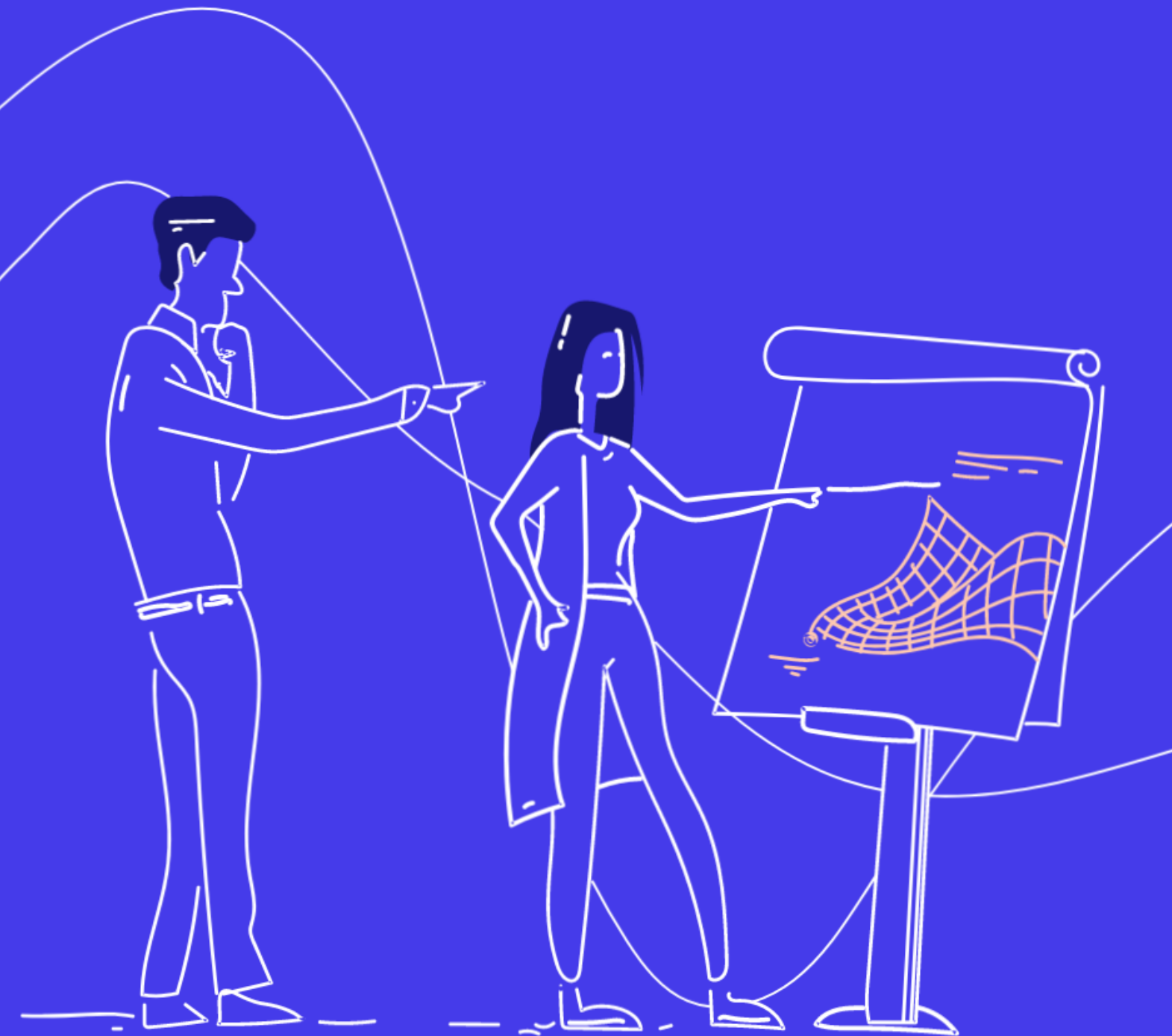




Integrating C Code with Simulink



SciEngineer's training courses are designed to help organizations and individuals close skills gaps, keep up-to-date with the industry-accepted best practices and achieve the greatest value from MathWorks® and COMSOL® Products.

Integrating C Code with Simulink

This one-day course presents multiple methods for integrating C code and MATLAB code into Simulink models. Topics discussed include writing C MEX S-functions, integrating MATLAB code, and the Legacy Code Tool for wrapping external C functions into Simulink.

Prerequisites

Simulink Fundamentals, MATLAB Fundamentals, and knowledge of C programming

DURATION	LEVEL
1 day	Medium
	

TOPICS

Day 1

- Code Integration Methods
- Transitioning from MATLAB to Simulink
- Calling External Routines
- Writing Wrapper S-Functions
- Code Generation Considerations
- Code Integration Methods Review

Code Integration Methods

OBJECTIVE: Become familiar with the various code integration methods and discuss how a Simulink model interacts with user-defined blocks.

- Overview of all methods of code integration
- Introduction to S-functions

Transitioning from MATLAB to Simulink

OBJECTIVE: Integrate MATLAB code into Simulink models.

- Writing a MATLAB function in a MATLAB Function block
- Converting a MATLAB function to a MATLAB Function block
- MATLAB Function block coding standards

Calling External Routines

OBJECTIVE: Integrate C code into a Simulink model using automated tools.

- Calling an external C routine with the Legacy Code Tool
- Calling an external C routine in a MATLAB Function block

Writing Wrapper S-Functions

OBJECTIVE: Integrate C code into a Simulink model by manually writing C MEX S-functions.

- Writing a C MEX S-function
- Calling external code from a C MEX S-function
- Work vectors
- Inheriting input and output port dimensions
- Additional macros

Code Generation Considerations

OBJECTIVE: Explore the procedures and limitations for automatically generating code with Simulink Coder™.

- Generating code from a MATLAB Function block
- Generating code from C MEX S-functions (Legacy Code Tool)

Code Integration Methods Review

OBJECTIVE: Review code integration methods and discuss the pros and cons of each.

- Review of all methods of code integration
- How to choose a code integration method



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knowledge**

