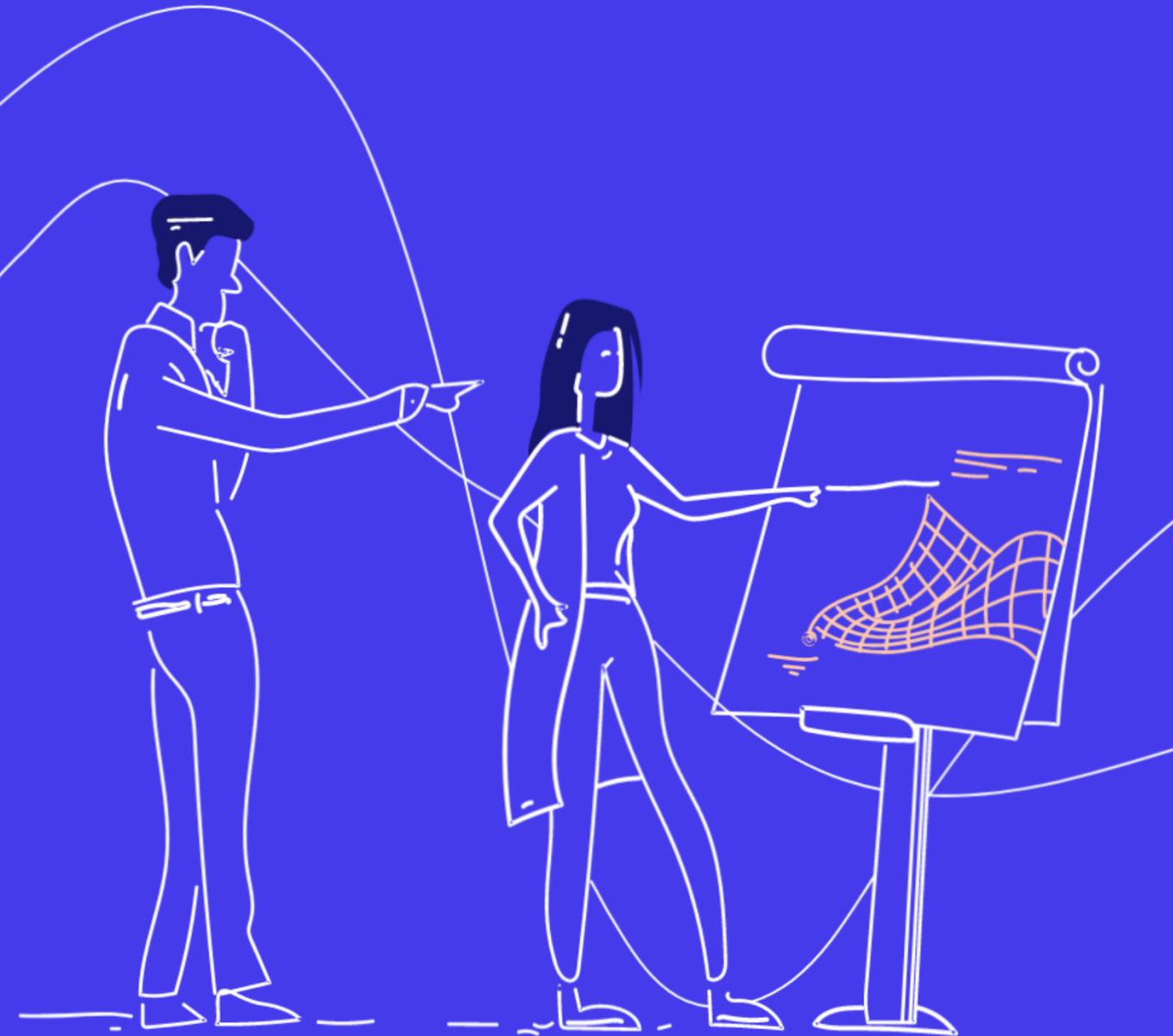




MATLAB Programming Techniques



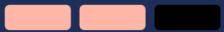
SciEngineer's training courses are designed to help organizations and individuals close skills gaps, keep up-to-date with the industry-accepted best practices and achieve the greatest value from MathWorks® and COMSOL® Products.

MATLAB Programming Techniques

This two-day course provides hands-on experience using the features in the MATLAB language to write efficient, robust, and well-organized code. These concepts form the foundation for writing full applications, developing algorithms, and extending built-in MATLAB capabilities. Details of performance optimization, as well as tools for writing, debugging, and profiling code are covered.

Prerequisites

MATLAB Fundamentals or equivalent experience using MATLAB

DURATION	LEVEL
2 Days	Medium
	

TOPICS

Day 1

- Structuring Data
- Managing Data Efficiently
- Utilizing Development Tools

Day 2

- Creating Robust Applications
- Structuring Code
- Verifying Application Behavior

Structuring Data

OBJECTIVE: Explore choices for storing data within a MATLAB application.

- Data types
- Concatenation and conversion
- Cell and structure arrays
- Extracting data

Managing Data Efficiently

OBJECTIVE: Use common techniques for improving performance when storing, accessing, and processing data.

- Preallocation
- Vectorization
- Memory management
- Objects and classes

Utilizing Development Tools

OBJECTIVE: Use integrated tools to manage code, diagnose problems, debug applications, and measure performance.

- Managing files with Projects
- Finding potential problems in code
- Debugging code
- Assessing code performance
- Using Source Control

Creating Robust Applications

OBJECTIVE: Create robust applications that withstand unexpected input and produce meaningful errors. Use built-in MATLAB functions and programming constructs, and employ standard techniques for handling error conditions.

- Creating flexible function interfaces
- Checking for warning and error conditions
- Working with the try-catch construct and MException objects

Structuring Code

OBJECTIVE: Modularize code into readable and maintainable functions. Explore the different function types available in the MATLAB language and the tradeoffs associated with each type. See how function type affects the performance and reliability of the code.

- Private functions
- Local functions
- Nested functions
- Function handles
- Precedence rules
- Comparison of function types

Verifying Application Behavior

OBJECTIVE: Create tests to verify that code meets requirements.

- Writing test scripts
- Running test scripts
- Using test functions



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your
knowledge**

