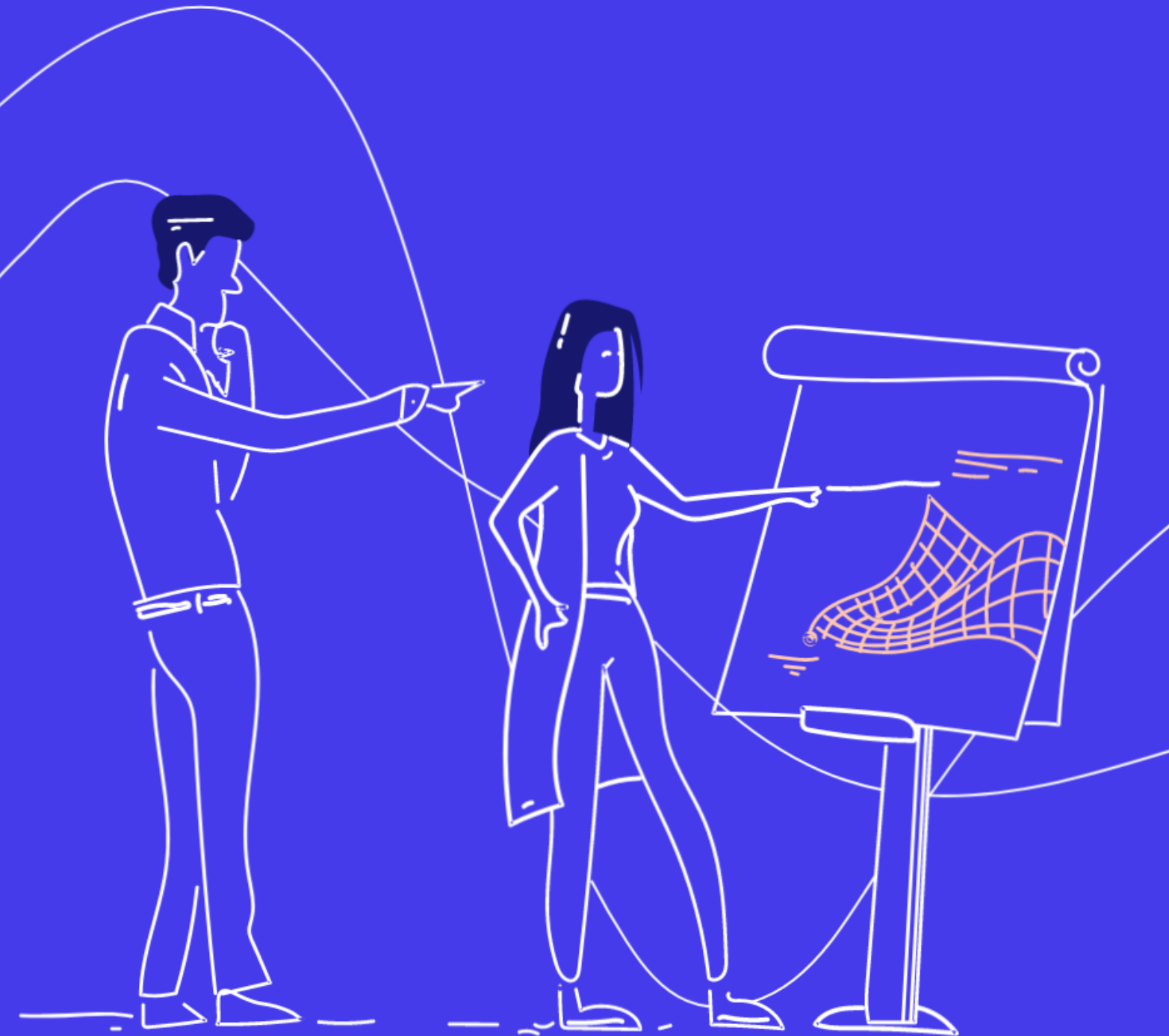




Optimization Techniques in MATLAB



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.

Optimization Techniques in MATLAB

This one-day course introduces applied optimization in the MATLAB environment using Optimization Toolbox and Global Optimization Toolbox. The course focuses on problem defining, objective functions writing, constraints defining, solver choosing and optimizations methods using.

Prerequisites

MATLAB Fundamentals. Knowledge of linear algebra and multivariate calculus is helpful.

DURATION	LEVEL
1 day	Medium
	

TOPICS

Day 1

- Running an Optimization Problem
- Specifying the Objective Functions and Constraints
- Choosing a Solver and Improving Performance
- Global and Multiobjective Optimization

Running an Optimization Problem

OBJECTIVE: Understand the basic structure and process of solving optimization problems effectively. Use interactive tools to define and solve optimization problems.

- Identifying the problem components
- Running an optimization using the Live Editor Optimization Task
- Applying the optimization process
- Using optimization functions

Specifying Objective Functions and Constraints

OBJECTIVE: Write an optimization problem. Use problem-based workflow to arrive at a solution.

- Using the problem-based workflow
- Specifying objective functions and constraints
- Identifying different types of constraints

Choosing a Solver and Improving Performance

OBJECTIVE: Select an appropriate solver and algorithm by considering the type of optimization problem to be solved. Interpret the output from the solver and diagnose the progress of an optimization.

- Classifying the objective
- Choosing a solver and algorithm
- Examining and interpreting the result
- Providing derivative information

Global and Multiobjective Optimization

OBJECTIVE: Use Global Optimization Toolbox functionality to solve problems where classical algorithms fail or work inefficiently. Solve problems with many objectives.

- Finding the global minimum
- Using genetic algorithms, direct search methods and surrogate optimization
- Use multiobjective solvers



**Expand your
knowledge**

