MATLAB for Data Processing & Visualization

Course Duration: 02 Days

Course Objectives

Use MATLAB® to create custom visualizations and automate data analysis tasks like the processing, analysis, and visualization of data. Enhance your data processing skills and create informative visualizations.

Course modules

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Module 01: Introduction to Course

Overview of the content covered.

Lessons:

- Course Overview
- Importing Weather Event Data from a Text File

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Module 02: Graphics Functions

Customize plot types for 2-D visualization.

Lessons:

- Customizing a Variety of Vector Visualizations
- Comparing Data in Columns
- Review - Graphics Formatting Functions

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Module 03: Customizing Graphics Objects

Create sophisticated visualizations using MATLAB graphics objects.

Lessons:

- Course Example - Visualizing Weather Events
- Modifying Graphics Properties
- Customizing Multiple Graphics Objects on an Axis
- The Graphics Object Hierarchy
- Review - Customizing Graphics Objects

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Module 04: Defining Categories of Data

Import data from a text file and organize it using categories.

Lessons:

- Categories and Set Operations
- Discretizing Continuous Data
- Review - Defining Categories of Data

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Module 05: Analyzing Groups within Data

Identify group within the data and analyze them.

Lessons:

- Calculations on Groups in a Dataset
- Organize Aggregated Data by Grouping Variable
- Review - Analyzing Groups within Data

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Module 06: Importing Data from Multiple Files

Read large data stored in multiple files.

Lessons:

- Course Example - Importing Hurricane Data from Multiple Files
- Creating Datastores
- Modifying Datastore Properties
- Importing Data into MATLAB
- Importing Data Types Directly
- Skipping Columns of Data
- Merging Data
- Review - Importing Data from Multiple Files

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Module 07: Review Project

An exercise that brings together data importing, processing, and visualization.

Lessons:

- Project - Vehicle Fuel Efficiency 2

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Module 08: Images and 3-D Surface Plots

Plotting irregularly spaced data.

Lessons:

- Making Grids
- Interpolating Scattered Data
- Visualizing Surfaces
- Colormaps and Indexed Colors
- Creating Indexed-Color Images
- Review - Images and 3-D Surface Plots

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Module 09: Importing Unstructured Data

Importing blocks of data into MATLAB.

Lessons:

- Course Example - Importing Australian Temperature Data
- Low-Level File IO
- Importing a Block of Formatted Data
- Processing Data in Blocks
- Review - Importing Unstructured Data

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