MATLAB® Programming

Interactive Hands-on Course

Course Outline

Quick review of the essentials

Standard functions. Data and array types. Integrated development environment. Working with data files. Graphics.

Function types

Subfunctions, anonymous, private and nested functions. Function handles. Best usage.

Defensive programming

Working with warnings, errors and exceptions. Dealing with non-compliant users. Sensible defaults.

Development practices & tools

Best practices. Programming style. Testability. Documentation. Help Browser integration. Programming tools in the IDE. Code management and source control.

Object oriented programming

Advantages and disadvantages of OOP. Use of classdef and method functions. Property types. Overloading functions and operators. Precedence. Best practices.

Performance and memory issues

Code assessment with timers and profiling. When to vectorize. Techniques for memory management and speed improvement.

Examples in data analysis and signal processing

This course can be customized to address client needs and interests.

Summary

This one or two day intensive course covers intermediate to advanced techniques for MATLAB programming and important features of the MATLAB development environment. The training stresses the best ways to use this powerful language for technical computing. The emphasis is on quickly developing code that is correct, maintainable and efficient. The course includes many examples and exercises.

What you will learn

- Elements of high quality software.
- Improving your MATLAB code.
- Developing code more effectively.
- Specific techniques to meet your needs.

Who should attend

Engineers, scientists and programmers who have knowledge of MATLAB fundamentals and want to improve. Those who are unfamiliar with useful features in recent releases. Those interested in mathematical programming, data analysis, or visualization.

Instructor

Richard Johnson has taught dozens of MATLAB courses. He is the author of the book *The Elements of MATLAB Style* and developer of the Data Visualization Toolbox for MATLAB. He has a B.S. in Mathematics from Purdue University, a Ph.D. in Engineering Science from UCSD, and was a professor at Oregon State University

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