

MATLAB

Length: 3 Days

Summary:

- Working with interface, data files, automated commands and writing functions
- Using the command window, path browser and figure window
- MATLAB functions such as; Stateflow Code, Namespace Operator and ml functions
- Defining Matrices and their functions and operations
- Plotting line, symbol, surface and vector plots
- Matrix algebra, linear algebra and differential equations
- Reviewing fundamentals for test preparation

Course Content

MATLAB FUNDAMENTALS

- Working with the MATLAB user interface
- Entering commands and creating variables
- Analyzing vectors and matrices
- Visualizing vector and matrix data
- Working with data files
- Working with data types
- Automating commands with scripts
- Writing programs with logic and flow control
- Writing functions

USING MATLAB'S ENVIRONMENT

- Starting and quitting MATLAB
- The Command Window
- Editor/Debugger
- Path Browser
- Workspace Browser

BUILT-IN MATLAB FUNCTIONS

- MATLAB Functions and Stateflow Code Generation
- ml Namespace Operator
- ml Function
- ml Expressions
- ml data type

MANIPULATING MATLAB MATRICES

- Defining Matrices
- Matrix functions
- Matrix operations

PLOTTING

- Line plots
- Symbol plots
- Contour plots
- Surface plots
- Vector plots
- Finishing touches

MATLAB USER-DEFINED FUNCTIONS

- Fcn
- Interpreted MATLAB Function
- MATLAB Functions
- MATLAB System
- S-Function
- S-Function Builder

LOGICAL OPERATORS/CONTROL STRUCTURES

- Element-wise
- Bit-wise
- Short-circuit
- Conditional Control
- Loop Control
- Vectorization
- Preallocation

MATLAB MATRIX ALGEBRA

- Adding and Subtracting Matrices
 - Multiplying Matrices
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- Dividing Matrices
- Solving Simultaneous Linear Equations
- Operating Element by Element

OTHER KINDS OF ARRAYS

- Multidimensional Arrays
- Cell Arrays
- Characters and Text
- Structures

SYMBOLIC MATHEMATICS

- Calculus
 - Linear Algebra
 - Algebraic and Differential Equations
 - Transforms (Fourier, Laplace, etc)
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