TCA
TRAINING & DEVELOPMENT

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MATLAB®

Data & Data Flow in Matlab

Programming

MATLAB Graphics

Simulink

Control System Tool

Communication Toolbox

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Introduction to MATLAB

- Historical of MATLAB
- Applications of MATLAB
- Scope of MATLAB
- Importance of MATLAB for Engineers
- Features of MATLAB
- MATLAB Windows (Editor, Workspace, Command History, Command Window)
- Operations with Variables
- Naming and Checking Existence
- Clearing Operations
- Introduction to Arrays
- MATLAB File Types

Data and Data Flow in MATLAB

- Matrix Operations & Operators
- Reshaping Matrices
- Importing Exporting Of Data
- Arrays
- Data types
- File Input-Output
- Communication with External
- Devices

EDITING and DEBUGGING M FILES

- Writing Script Files
- Writing Functions
- Error Correction
- M-Lint Automatic Code
- Analyzer
- Saving Files

Programming

- Flow Control
- Conditional Statements
- Error Handling
- Work with Multidimensional
- Array

- Cell Array & Characters
- Developing User Defined
- Function
- Scripts and Other Functions

MATLAB GRAPHICS

- Simple Graphics
- Graphic Types
- Plotting Functions
- Creating Plot & Editing
- Plot(2D and 3D)
- Graphics Handles
- GUI(Graphical User Interface)

DETAILED ANALYSIS of CONTROL SYSTEM TOOLBOX

- General Instructions
- Creation of Linear Models
- Classes of Control System
- Toolbox
- Discussion on State Space
- Representation
- Transfer Function
- System Gain and Dynamics
- Time & Frequency Domain
- Analysis Classical Design, State Space
- Model
- Transfer Function
- Representation, System
- Response
- LTI Viewer Detail and
- Explanation About LTI Viewer
- Designing of Compensator
- Use of SISO Design & MIMO
- Design Tool

SIMULINK

- Introduction
- Importance
- Model Based Design

- Tools
- Mathematical Modeling
- Converting Mathematical
- Model into Simulink Model
- Running Simulink Models
- Importing Exporting Data
- Solver Configuration
- Masking Block/Model

DETAILED ANALYSIS OF COMMUNICATION TOOLBOX

- Signal Sources
- BER Tool
- Modulation
- Special Filter
- Channels
- Equalizers

DETAILED ANALYSIS OF SIGNAL PROCESSING TOOLBOX

- Basics of Signal Processing
- Representing Signals
- Analysis of different Signals
- Complex Signals
- Filter Designing
- Using the Filter Designing GUIs
- Analyzing the filter plots
- Filter Designing using Script
- Files
- Other Signal Processing
- Functions

DETAILED ANALYSIS OF IMAGE PROCESSING TOOLBOX

- Reading and Writing Image
- Data
- Displaying and Exploring Image
- Spatial Transformation
- Image Registration
- Designing and implementing
- 2D linear Filters for Image Data

- Morphological Operations
- Transforms
- Analyzing and Enhancing
- Images
- ROI based Processing
- Neighborhood and Block
- Operations

PROJECT

- Project based on Tool Box