SUMMER TRAINING PROGRAM 2013

(MATLAB)

Introduced By:

In Association with:

YD Tech Sourcing Pvt. Ltd.

Contact Us:

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Summer Training Program 2013

- ❖ **Course Name**: MATLAB
- ❖ **Course Duration**: 30 Days, 50/60hrs
- ❖ **Course Fee**: INR 6900 (Including Taxes)
- ❖ **Course Certification**: Certified by Matbotrix Technologies (Regd.) & YD Tech Sourcing Pvt. Ltd.
- ❖ **Course Level**: Intermediate Level
- ❖ **Robotics Toolkit**: Free to Each Participant
- ❖ **Study Material:** Books & CDs free to each participant
- ❖ **Group discount**: Up to 15%
- ❖ **Website**: http://www.matbotrix.com

Course Content:

1. **Introduction to MATLAB:**

- Historical Background
- Applications
- Scope of MATLAB
- Importance of MATLAB for Engineers
- Features
- MATLAB Windows(Editor, Work Space, Command History, Command Window)
- Operations with Variables
- Naming and Checking Existence
- Clearing Operations
- Introduction to Arrays
- MATLAB File Types
- How to open, quit and work on command window
- Discussing about important command used in command window
- Work space
- Command history
- How to use HELP and WEB HELP
- Some important matrix operations
- Introduction to some operators

- Introduction to M-file editor
- Editing and debugging M-files
- Basic plotting functions
- Creating plot
- Editing plot
- Solving Quadratic equations.
- How to make functions in MATLAB.
- How to solve calculus in MATLAB.

2. Image Processing Toolbox in MATLAB:

- Types of images
- Types of image compression & standard like JPEG, GIF
- Image Arithmetic
- Coordinate Systems
- Displaying images etc.
- Basic image related functions

3. Image Arithmetic:

- Addition
- Subtraction
- Multiplication
- Division
- Complement

4. Spatial Transformation:
- Interpolation
- Zooming
- Resizing
- Rotation
- Cropping
- Contrasting
- Image Sequences

5. Filtering:

- Convolution
- Correlation
- Noise Model
- Types of Noise
- Types of Filters (averaging, laplacian, median etc.)
- Filter Design
- Use of imfilter function
- How to remove noises from grey and colour images.

6. Morphological Operations:

- Dilation
- Erosion
- Closing & opening
- Reconstruction
- Thinning & Thickening
- Boundary Extraction
- Region Filling
- Hit or Miss Transformation
- Pruning

7. Analysing and Enhancing Images:

- Pixel values & Statistics
- Image Analysis
- Image Enhancement

8. Image Transformation

- Grey level slicing without background
- Grey level slicing with background
- Power law transform
- Logarithmic Transformation

9. Image Acquisition Toolbox:

- How to open camera using MATLAB.
- Capturing a image

- Image Sequencing

10. **Miscellaneous:**
- Data Acquisition toolbox
- Deploying Toolbox
- Conversion to different colour spaces
- Blurring
- Image matching
- Motion detection
- Edge Detection
- Image Segmentation

Projects Covered

- Ball follower Robot using image processing
- Laser controlled robot based on image processing
- AVR & Matlab based three colour sensing robot.
- Matlab based home automation using Rf.
- AVR & Matlab based red color tracking robot.
- Matlab based controlled robot with wireless camera and obstacle sensor.
- GUI Based Robot.
- GUI Based Calculator.
- Controlling Mouse Cursor using Image Processing.
- Real Time Object Seperation using Image Processing

Industry Interface Program

Projects

- • 1 Assignment / Mini Project
- • 1 Major Project

Domains / Industry

- • Design
- • Architecture
- • Computer Science

• Electricals and Electronics