

2-Days Workshop

On

MatLab and Image Processing

2-Days Project to be covered

- **2D & 3D Graphical Representation**
- **Image Comparison**
- **Image Pairing**
- **Matrices Manipulation**
- **Filtering of Noise**
- **Red Object Detection**
- **GUI Based Calculator**
- **GUI Based Image Transforms**

2-Days Course Contents

Day 1 (1st Session)

Introduction to MATLAB

- What is MATLAB
- The dominance of MATLAB over other languages
- Power of Matrix computations
- The application of MATLAB in various fields of engineering
- MATLAB Environment

Arithmetic Functions in MATLAB

- Matrixes and Vectors
- Creating Matrixes and Vectors Matrix Operation
- Array Operation
- Indexing Matrix
- Adding Elements to Vector or Matrix
- Various Flow Control used in MATLAB 2D & 3D
- graphical Plotting

Day 1 (2nd Session)

Introduction to Image Processing

- What is Image Data
- Image Processing Toolbox
- Importing Image
- How to build a matrix image
- Image Display
- Image Operations
- Image Conversion

Image Arithmetic

- Adding Images
- Subtracting Images
- Multiplying Images
- Dividing Images
- Spatial Transformation
- Resizing Images
- Rotating Images
- Cropping Images

Image Filtration

- What is Image Restoration
- Noise and Images
- Noise Models
- Noise removal using spatial domain filtering
- Periodic noise
- Noise removal using frequency domain filtering

Day 2(1st Session)

Morphological Image Processing

- **Mathematic Morphology**
- **Z2 and Z3**
- **Basic set theory**
- **Logic Operations**
- **Structuring Element**
- **How to describe Structuring Element**
- **Basic Morphological Operations**
- **Erosion**
- **Dilation**
- **Combining Erosion and Dilation**
- **Filtering Application**

Introduction to Graphical User Interface

Application and Demos

Day 2 (2nd Session)

Zonal Competition

After the hand on theory and practical experience from the workshop, Zonal Round Competition will be conducted for the participants.

Certification:

1. Certificate of Participation from RoboFeast-2018 in association with ED Cell IIT-Roorkee
2. Certificate of Merit from RoboFeast-2018 in association with ED Cell IIT-Roorkee
3. Certificate of Coordination from RoboFeast-2018 in association with ED Cell IIT-Roorkee
4. College will get Center of Excellence form RoboFeast-2018 in association with ED Cell IIT-Roorkee

Registration Fees: - 1200/per student only + 15% services tax

(The fees include training, Certification and event Registration.)

Free Matlab & Image Processing kit to each Team group of 4 member.