



DETAILS FOR MATLAB WITH IMAGE PROCESSING & ROBOTICS WORKSHOP

MATLAB is a widely used tool in all Engineering fields. MATLAB is a versatile software package that can be expanded by any interest group to match their special computational needs. As robotics is an ever-evolving domain, which requires constant innovation and technology advancements.

Workshop will cover all the basics and essentials of MATLAB on the first day followed by practical Lab sessions. Second day will cover some advance level topics with practical implementation of Real Time Image Matching Project.

CONTENTS AND DURATION

The workshop will be a two day workshop divided into a total of six sessions. Each day will have three sessions as mentioned below:

1. Theory lectures through power point presentation
2. Tutorials: a warm up session before going for Lab sessions
3. Lab sessions : Practical lab sessions in a Computer lab

The Topics that will be covered are:

DAY-1:

1. Introduction to Matlab
2. Matlab Windows and Basic Commands
3. Arithmetic operations
4. Graphics: Graphs and plots
5. Programming: Basic (script files) and Advanced (function files)
6. Various Algorithm development
7. Data acquisition system
8. Led blinking patterns display
9. Robotics exposure
10. Implementation of computer control Robot in Computer LAB

DAY-2:

Image Acquisition Toolbox

1. Installation of image capturing device
2. Linking codes on MATLAB
3. Capturing image through MATLAB

Image Processing Toolbox

1. Image and its types in MATLAB
2. Conversion between image types
3. Various dimensions of image
4. Reading, Writing and Displaying an image
5. Various techniques over images like rotating, resizing etc.
6. Study of various colour schemes
7. Working with RGB colours

Projects Implementation:

- Real Time Image Matching using Image processing toolbox
- MATLAB Photoshop Environment Development.
- Color code & puzzle solving automated robot.

Workshop Fee:

1. The fee for the workshop is Rs.1200/- per participant. So it will cost. Rs.4800/- per group (containing 4 members)
2. Kits will be provided permanently to each group. Also includes certificate by IIT Indore to every participant individually.

Kit Content (provided to each group):

Component	Quantity
Chasis	1
Motors	2
Tyres	2
Li-ion Battery	1
9 Volt Battery	2
Battery Cap	2
Insulation Tape	1

Matlab Data acquisition Kit

Component	Quantity
Matlab Interfacing Board	1
Amplifier module	1
Connectors	3
Web Camera	1

Reference Study Material

	Quantity
Stationary items	1
workshop handbook Manual	1
Basic Construction of Circuits/Robots	1

Terms and Conditions:

1. Workshop will be two days exhaustive workshop which includes Theory, tutorial and Practical Sessions.
2. The fee for the workshop is Rs.1200/- per participant. We will allow them to work in a group (containing maximum of 4 members).
3. KITS, Certificates and Handbooks will remain with participants.

Advantages of the Workshop

1. Apart from theoretical knowledge, introduction to practical approach in the field of Embedded Systems and Robotics for engineering students.
2. Students will develop a project after completion of the training (helpful for their major projects or can be used as their major projects).
3. Making complete environment as learning with fun so that student can feel free for their doubts in complete training session.
4. Will learn Team working, Project development & management.