

6th Sense Robotics Workshop Course Content

Techfest is the annual science and technology festival of IIT Bombay. Following is the basic outline of the **in-person** workshop that would be happening at **Techfest in IIT Bombay**.

The workshop is a secure platform for students to enter into the field of robotics and work on image processing. The workshop helps the students to learn all the basics and apply them, in reality, using our kits. The workshop helps the students to fight all the competitions related to robotics, Image processing, Aerial Robotics, etc. The workshop would be taken up by people in the industry with immense international experience in the field of Image Processing. The details of the workshop are as follows:

Topics to be covered

1. Introduction to Robotics and Combination of Robotics with SixthSense
2. Microcontroller Programming
3. Machine Control
4. Introduction to Computer vision
5. Digital Image Processing in Matlab
6. Image Manipulation in Matlab
7. Video acquisition and Manipulation

HANDS-ON SESSION

The final aim is to build various vision-based machines.

Robots that will be covered on this day include (apart from discussing any ideas from the participants)

- **LED and Motor Control:**

Students Learn the basic code to program the board. They learn how to glow the LEDs and make patterns on them, secondly, they learn how to control the motors.

- **Computer Controlled Robot:**

Students Learn to control the Robot by sending commands through the Keyboard. It is the same as playing a racing game and control your car using ASWDX.

- **Ball Following Robot:**

The Students make a Robot that shall be able to follow a ball using the camera attached. The programming and concept are taught in detail.

- **Change a PowerPoint Presentation with your hands:**

Amazing it is, now use sixth sense technology to control a PowerPoint presentation by using your hands, no Mouse or Keyboard is required.

- **Control Media Player with Hand Movements:**

Also, learn to control your VLC Media player using your hands. Just wave the hand to stop or play, and move your hand to the left to reverse or right to fast forward.

And Much More.....

- Assembling the Kit
- Writing the codes
- Burning the codes
- Finally, Run the Bot
- Go for Competition.