



***“This is Computer age next will be Robotic era”***

WORKSHOP ON X-PENTABOT “5 APPLICATIONS ON 1 ROBOTIC KIT”

*ThinkWare conceptualized practical based module in Non Microcontroller Robots with self developed Robotic kits for which provide students a good platform to learn the basic concept of Robotics. Learn Robot control through PC, Remote, Sensor, keypad & wireless.*

## **ThinkWare: Technology & Innovation Kiosk**

### Shepherding-Intelligent-Tomorrow

**ThinkWare** is a venture which deals in the domain of Robotics, Embedded Systems & MATLAB with strategically current focus in educational domain to bridge the gap between Industry demands & current academics offerings in Institutes. With a passion in Robotics and keeping constant eye on various national & international events, we have vast experience in the same and a constant focus in this grooming industry. **ThinkWare** was founded by a strong team of young Engineers & budding Entrepreneurs working in the same industry, and is currently incubated at STEP-ITBI, JSSATE Noida. The company is properly backed by the experienced academicians and Industries.

## **X-PentaBOT “xpert in 5 Applications using 1 Robo kit”**

**X-PentaBOT** is a rigorous two day robotics workshop for the uninitiated and robotics enthusiasts. This workshop is strategically designed for a short term to make full utilization of day to have hands-on fun-filled learning. Not only it introduces students to the basics of robotics but also ignites in them the passion for research and product development in the fields of mechatronics and non-microcontroller based Robot.

The name itself shows that this workshop comprises of five applications with single Robot. Robot controlled by logic circuits using *Remote, Wireless, Computer, Sensors & Mobile phone*.

**X-PentaBOT** is an ideal platform for anyone to embark on the exciting and promising field of robotics.

### **Features of Workshop:**

- Take away Robot kit worth Rs. 3000/- will be given to each team of 4 students.
- Certificate of participation will be given to each participant.
- Free 30 days 8051 e-learning course on Thinkware.com worth Rs. 1500/-
- Free access to INDIA’s best Robotics forum “RoBoFreaks” at Thinkware where student’s can publish their projects & will be acknowledged.
- Study material & Thinkware CD will be given to each student.
- Lifetime membership account on [www.thinkware.com](http://www.thinkware.com) to avail all discounts in future.

### **Who can be benefitted?**

B.E/B.Tech/Diploma students of following branches:

Student of any branch as this is the basic course in Robotics and an excellent module for beginners. Learning about PC control, wired remote, RF, Mobile control Robot.

### **What is the beneficial learning?**

- Basic knowledge of Electronic components
- Their working principle with practical implementation
- Assembling of your own Robot
- Basics of Robotics
- The mechanism behind the Robots
- Making your own automated robot with an electronic brain and electromechanical muscles.

### **Course content:**

- Introduction to Robotics
- Definition of Robotics
- Different parts of a Robot with basic block diagram

- Electronics, programming skills, mechanical skills etc. This field is the one where your knowledge is put to test.

### **Control Systems**

- Controlling a robot via wired medium & wireless (RF based)
- Controlling a robot with its own brain
- Designing of logic circuits
- How to implement logic using electronic hardware

### **Remote control Robot:**

- How to design your own remote.
- Robot control through wired remote.
- Robot control through wireless remote.

### **PC controlled Robot:**

- How to control through signals from PC.
- Study of RF control.
- Encoder & Decoder circuit in RF
- Parallel port communication through PC
- Wired controlled via PC
- Wireless control via PC

### **Mobile Controlled Robot:**

- What is DTMF?
- What is DTMF?
- Interfacing of DTMF ICs
- Concept and Algorithms
- Integrating DTMF with nokia series mobile
- Study of DTMF decoder IC 8870
- DTMF Keypad Frequencies
- Explaining DTMF based circuitry used with MOBILES.

### **Sensors**

- Study of different types of sensors
- Touch sensors
- Light sensor using LDR, photo transistor and photo diode.
- Infrared sensor using IR diode, and IR detectors
- Obstacle detectors

### **Actuators**

- Types of actuators used in Robotics
- DC motors (geared and non geared)

### **Motor drivers**

- Motor driver using relay
- Motor driver using transistor

- Motor driver ICs

### **Kit Details:**

- Optocard with Motor Driver I C
- Obstacle Detector Sensor with Connector
- MiniRobo2wd Robotic Platform (Chassis, Wheels, castor & motors)
- DC Motor (12 volts) 2 nos.
- IC L293D 2 nos.
- Optocoupler IC 8 nos.
- Remote keypad
- Parallel port cable
- DTMF module
- Connectors
- Screws and Nuts
- Adaptor (12volts)
- One Packaging Box.

### **Course Duration:**

- The workshop will be of 2 days (16 hours)

### **Requirements from college:**

- Infrastructure as computer lab 2 students will be seated at one PC.
- LCD Projector for the lecture.
- Lodging & Boarding facility for the trainer during workshop.
- Minimum participation of 60 students.

### **Contact:**

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