Certified by IIT Bhubaneswar Incubation Partner

XROBOTICS

STEM, AI & Robotics Teacher Training Programs

Empowering Educators to teach with confidence. Build your career growth with India's leading STEM training program.

View 36-Day Live Program | View 24-Day Recorded Program

PREMIUM CHOICE

Option 1: 36-Day Live Training

Live Online Classes + Hands-on Project Guidance

₹18,000

Includes Kit, Certification, Badge & LMS

Detailed Curriculum

Phase 1: Robotics & Electronics Foundations (Days 1-9)

- **Day 1:** Robot structure (skeleton), sensors, definitions.
- **Day 2:** Robot Brain (controller), commands, instructions, types of robots.
- **Day 3:** Basic electronic components, magnetism, types of magnets.
- **Day 4:** Natural vs Artificial magnets, circuits, Ohm's Law, Project: Electromagnet.
- **Day 5:** Resistors, colour codes, multimeters, Project: Wireless Electricity.
- **Day 6:** Types of motors, parts of a motor, Project: Lemon Battery.
- **Day 7:** Series & Parallel circuits, simulation, Project: LED Glow.
- **Day 8:** Mechanical switches, types, Project: Manual Traffic Light.
- **Day 9:** Flame Detection System & IR Sensor Obstacle Detection.

Phase 2: Python Programming (Days 10-16)

- **Day 10:** Intro to Python, syntax, indentation errors, program structure.
- **Day 11:** Numeric, Boolean, Strings, Lists, Tuples, Sets, Dictionaries.
- **Day 12:** Arithmetic/Logical operators, if-else, elif, nested conditions.
- **Day 13:** Loops (for, while), nested loops, break, continue.
- **Day 14:** Functions, arguments. Overview of NumPy, Pandas, SciPy, Matplotlib.
- **Day 15:** List operations, tuple conversion, string manipulation & slicing.
- **Day 16:** Full course revision, practice questions, and assessment.

Phase 3: 3D Design & Visual Coding (Days 17-20)

- **Day 17:** TinkerCAD setup, object creation, Project: Dice Design.
- **Day 18:** Chain Design, 3D House, Whistle, Balloon Powered Dragster.
- **Day 19:** Scratch IDE setup, interface blocks, Project: Famished Fish.
- **Day 20:** Clock Design, Maze Game, Flappy Bird, Cross the Road Game.

Phase 4: Arduino & IoT (Days 21-27)

- **Day 21:** Microcontrollers, working principles, Arduino board overview.
- **Day 22:** Arduino IDE, I/O pins, Project: Multicolor Signaling System.
- **Day 23:** Advanced Coding (Strings, Arrays), Project: Smart Obstacle Detection.
- **Day 24:** Gas Alert System & Temperature Measurement System.
- **Day 25:** Smart City Projects: Smart Dustbin & Smart Street Light.
- **Day 26:** Weather Station & Alcohol Detection System.
- **Day 27:** Hand Sanitizer Dispenser & Smart Fire Extinguishing System.

Phase 5: Advanced Robotics, AI & ROS (Days 28-36)

- **Day 28:** ROS (Robot Operating System): Nodes, Topics, SLAM, Path Planning.
- **Day 29:** Project: Obstacle Avoiding Robot Car.
- **Day 30:** Project: Line Following Robot Car.
- **Day 31:** AI Basics, ML vs DL, Ethics, Applications.
- **Day 32:** Computer Vision: Image processing, Face & Object Detection.
- **Day 33:** NLP: Natural Language Processing tasks & applications.
- **Day 34:** Speech Recognition: Speech-to-Text, Voice Commands.
- **Day 35:** AI Ethics, Hands-on: Voice-Controlled Robot.
- **Day 36:** Final Project Integration, Demo, Presentation & Viva.

Included Projects

- Programming Input devices (LED, Button, Buzzer)
- IR Sensor, LDR Sensor & Ultrasonic Sensor with Arduino
- Servo Motor Interfacing
- Smart Dustbin & Weather Station
- LCD Module with I2C
- Manual Robotics & WiFi/IoT Robotics Car
- NodeMCU (ESP8266) on Arduino IDE
- LED Blink with Micro-Python

36-Day Kit Contents

- Arduino UNO
- IR & LDR Sensors
- Servo Motor
- 4 Wheel Chassis
- Li-Ion & 9V Battery
- NodeMCU (ESP8266)
- Ultrasonic & DHT-11
- L298N Motor Driver
- LCD I2C Display
- Breadboard & Tools

FLEXIBLE CHOICE

Option 2: 24-Day Recorded Training

Self-Paced Recorded Modules + 4 Live Sessions

₹5,999

Includes Kit, Certification & Lifetime LMS

Curriculum Overview

Days 1-7: Foundations & Electronics

Intro to STEM, Platforms, TinkerCAD 3D Modelling, Magnets, Basic Electronics, TinkerCAD Simulation (Series/Parallel), Active/Passive Components.

Days 8-14: Programming & Sensors

Embedded C++, Arduino Programming, Push Button, IR Sensor, LDR Sensor, Servo Motor, DHT11 Sensor, LCD with I2C.

Days 15-20: Robotics, IoT & AI

Motor Driver (L298N), Robotics Car Dev, Ultrasonic Sensor, MIT App Inventor (Home Automation), WiFi/IoT Car, AI Concepts, Python for AI.

Days 21-24: Live Interaction

Four dedicated online sessions for Doubt Clearing and Assignments.

Key Projects

- Magnetism Electricity Transmission
- Sensors: IR, Ultrasonic, LDR, DHT-11
- IoT Enabled Home Automation
- App Development Project
- Servo Motor & Microcontroller practicals
- Python Programming Basics
- LED & RGB Projects

24-Day Kit Contents

- Arduino UNO
- IR, LDR, Ultrasonic
- SG90 Servo
- 3-Wheel Chassis
- Li-Ion Battery/Charger
- NodeMCU (Aimica)
- DHT 11 Module
- L298 Motor Driver
- LCD 16X2 w/ I2C
- Multimeter & Tools

Certification & Recognition

Completion Certificate
From XRobotics Works Pvt. Ltd.

SSPI® Coach Badge
National STEM Ranking System

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