Kids IT Courses

KIDS & TEENS FREELANCING TRAINING

Applied Robotics Course Outline

MODULE 1: Introduction to Robotics & Technology

- What is a Robot ?
- History and Future of Robotics
- Real-Life Applications (Space, Medical, Industry)
- Basic Components of Robots (Sensors, Motors, Microcontrollers)

MODULE 2: Electronics & Circuit Fundamental

- Understanding Electricity & Safety
- Basic Electronic Components (LED, Resistor, Battery)
- Building Simple Circuits on Breadboards
- Intro to Power Supply & Motors

MODULE 3: Mechanical Design & Structure

- Types of Robot Structures
- Design Principles: Balance, Mobility, and Durability
- Gears, Wheels, Levers & Movement Mechanics
- Hands-on: Build a Simple Chassis

MODULE 4: Programming for Robotics

- Introduction to Block-Based Coding (Scratch or Blockly)
- Logical Thinking & Commands
- Programming Sensors & Outputs (e.g. LEDs, Buzzers)
- Hands-on: Code Your First Robot

MODULE 5: Sensors & Input Devices

- Types of Sensors: Ultrasonic, IR, Touch, Light
- How Sensors Work in Robots
- Interpreting Sensor Data
- Projects Using Sensor Inputs

MODULE 6: Robotics with Microcontrollers

- Intro to Arduino / Micro:bit / Raspberry Pi (age-dependent)
- Programming with Arduino IDE (Basic)
- Connecting Inputs and Outputs
- Hands-on: Smart Robot Project (Obstacle Avoider / Line Follower)

MODULE 7: AI & Robotics Integration (Intro Level)

- What is AI in Robotics?
- Basics of Decision-Making & Smart Responses
- Voice Commands / Facial Recognition (Simplified)
- Fun Project: AI-Based Mini Bot

MODULE 8: Project Building & Innovation

- Design Thinking Process
- Team-Based Capstone Project
- Project Presentation & Demo
- Problem Solving & Innovation Challenge
