TuxAcademy Robotics Program

3-Month Professional Robotics Training

IoT, Drones, Sensors, Programming, Vision |

Capstone Project | Certification

Course Objective

This 3-month professional robotics training covers IoT, drones, sensors, programming, data management, computer vision, kinematics, dynamics, robotics integration, project work, and certification.

Module 1: IoT, Drones & Robotics Intro

- Concepts & Applications (Theory)
- Live Demos (Practical)

Module 2: Sensors & Actuators

- Types, Working (Theory)
- Interface with Boards (Practical)

Module 3: Communication & Networking

- Protocols: MQTT, Zigbee, BLE (Theory)
- Real-time IoT Comms (Practical)

Module 4: Robotics Programming

- Microcontrollers, Logic (Theory)
- Arduino/RPi Coding (Practical)

Module 5: Drone Programming

- Flight Principles (Theory)
- Mission Planner, Python Scripts (Practical)

Module 6: Data Mgmt & Analytics

- IoT Data Flow, Storage (Theory)
- Cloud Logging + Analysis (Practical)

Module 7: Computer Vision

- OpenCV, Object Detection (Theory)
- Image Recognition Tasks (Practical)

Module 8: Kinematics

- Forward & Inverse Kinematics (Theory)
- Arm Robot Control (Practical)

Module 9: Dynamics

- Force, Torque, Motion Planning (Theory)
- Simulation in Gazebo/Webots (Practical)

Module 10: Robotics Integration

- Combine Sensors + Control (Theory)
- Mini Bot Build (Practical)

Module 11: Project Phase I

- Design Plan, Components List (Practical)
- Team Coding/Testing

Module 12: Final Project + Certificate

- Demo + Evaluation
- Report + Certificate Issuance