Course Outline

For

IoT & Robotics

Course Outline: IoT and Robotics at Code Ninja Pro Academy

Course Overview

This course introduces students to the exciting world of Internet of Things (IoT) and Robotics, where they will learn to build smart devices and robotic systems using microcontrollers and sensors. Through hands-on projects and interactive lessons, students will explore the intersection of technology and real-world applications, fostering creativity and problem-solving skills.

Course Length: 24 Weeks

Key Learnings

- Understanding IoT Technologies and Microcontrollers
- Building Basic to Advanced IoT Devices
- Introduction to Robotics and Automation
- Data Logging and Analysis
- Project-Based Learning and Collaboration

Achievements

- Proficiency in IoT Device Building
- Understanding of Robotics and Automation Principles
- Enhanced Problem-Solving and Critical Thinking Skills
- Ability to Design and Present Innovative Projects

Module 1: IoT Technologies

Description: Introduction to the concepts of Internet of Things (IoT) and its applications in various industries.

Lessons: 2

Topics: Introduction to Internet of Things, Exploring Microcontrollers

Module 2: Basic IoT

Description: Building basic IoT projects using microcontrollers and sensors.

Lessons: 3

Sample Projects: Traffic Lights, Temperature Alert System, Light Sensor Night Light

Certificate: Unlock Certificate of Basic IoT

Module 3: Intermediate IoT

Description: Developing intermediate-level IoT devices with more complex functionalities.

Lessons: 4

Sample Projects: Basic Motion Detector, Simple Weather Station, Smart Door Alarm, Water Level Indicator

Certificate: Unlock Certificate of Intermediate IoT

Module 4: Advanced IoT

Description: Building advanced IoT systems for home automation and environmental monitoring.

Lessons: 3

Sample Projects: Simple Home Automation Light, IoT Weather Station with Data Logging, Home Security System

Certificate: Unlock Certificate of Advanced IoT

Module 5: Robotics Introduction

Description: Introduction to robotics principles and basic components.

Lessons: 2

Topics: Introduction to Robotics, Understanding Robot Components

Module 6: Robotics Projects

Description: Hands-on projects to build and program simple robots.

Lessons: 3

Sample Projects: Line Following Robot, Obstacle Avoidance Robot, Robotic Arm Control

Certificate: Unlock Certificate of Robotics Basics

Module 7: Final Project: Home Automation Dashboard

Description: Students will design and create their own home automation dashboard, integrating multiple IoT devices and sensors into a unified system. They will present their final project to the class, demonstrating their understanding and creativity.

Final Project: Design and Create Your Own Home Automation Dashboard

Presentation: Presenting Final Project

Certificate: Certificate of Completion in IoT and Robotics

Summary

This IoT and Robotics course at Code Ninja Pro Academy provides students with a comprehensive introduction to building smart devices and robotic systems. From basic IoT projects to advanced home automation systems, students will explore the endless possibilities of technology in real-world applications. Through hands-on learning and collaborative projects, students will develop essential STEM skills and gain confidence in their ability to innovate and create with technology.