🚀 30-Hour Online IoT Course Using Simulator

This 30-Hour Industrial IoT Training Program is designed to provide hands-on exposure to modern industrial automation and connected systems using ESP32, MQTT, ThingsBoard, and cloud-based monitoring platforms. Participants will learn sensor integration, real-time data acquisition, wireless communication, remote monitoring, dashboard development, and industrial data visualization through practical simulations and industry-inspired use cases. The course emphasizes Industry 4.0 concepts, smart manufacturing, predictive monitoring, and IoT solution development, culminating in a real-world industrial project challenge where students design, develop, test, and demonstrate a complete IoT application following standard engineering workflows used in industrial deployments.

Duration: 30 Hours
15 Days × 2 Hours

🗓️ DAY 1: Introduction to IoT & Simulator

🔹 Introduction to IoT (Internet of Things)

Learn what IoT is and how everyday devices can collect, send, and receive data over the internet. Understand the basic components of an IoT system such as sensors, microcontrollers, cloud platforms, and user applications.

🔹 Real-World IoT Applications

Explore how IoT is transforming industries and daily life through applications such as:

• Smart Homes
• Smart Agriculture
• Healthcare Monitoring
• Industrial Automation
• Smart Cities
• Vehicle Tracking Systems

🔹 Industry 4.0 Overview

Understand the fourth industrial revolution and how technologies like IoT, AI, Cloud Computing, and Data Analytics are changing modern industries. Learn how factories use connected devices for monitoring, automation, and predictive maintenance.

🔹 Introduction to Simulator

Get started with Wokwi, an online electronics and IoT simulation platform.

Topics Covered:

- Creating a Wokwi account
- Exploring the Wokwi interface
- Understanding virtual components
- Using ESP32 in simulation
- Running and testing projects online
- Advantages of simulation before hardware implementation

🛠 Practical Activity

Create your first ESP32 simulation in Wokwi and upload a simple program to check serial data

🗓️ DAY 2: ESP32 Basics & Digital Input/Output

🔹 Introduction to ESP32

Learn about the ESP32 microcontroller, one of the most popular development boards used in IoT projects. Understand its features such as built-in Wi-Fi, Bluetooth, multiple GPIO pins, low power consumption, and processing capabilities.

Topics Covered:

• What is ESP32?
• ESP32 Applications
• ESP32 Board Overview
• ESP32 Pin Layout
• Advantages over Arduino Uno
• ESP32 Development Environment

🔹 Understanding GPIO Pins

Learn about General Purpose Input Output (GPIO) pins and how they are used to communicate with sensors, LEDs, switches, and other electronic devices.

Topics Covered:

• Input Pins
• Output Pins
• GPIO Numbering
• Safe GPIO Usage
• Commonly Used Pins

🔹 Digital Input & Output Concepts

Understand how microcontrollers read and control digital devices.

Topics Covered:

• HIGH and LOW Logic Levels
• pinMode()
• digitalWrite()
• digitalRead()
• Controlling Output Devices
• Reading Input Devices

🔹 Programming Basics

Introduction to Arduino IDE code structure:

• setup() Function
• loop() Function
• Variables and Constants
• Uploading and Testing Code

🛠 Practical Project 1: LED Blinking

Students will:

• Connect a virtual LED to ESP32
• Write code to blink the LED
• Understand timing using delay()
• Modify blinking speed

🛠 Practical Project 2: Traffic Light System

Students will:

• Connect Red, Yellow, and Green LEDs
• Simulate a traffic signal
• Implement timing sequences
• Understand real-world automation logic

🗓️ DAY 3: Push Buttons, Buzzer & Digital Sensors

🔹 Understanding Push Buttons

Learn how push buttons are used as input devices to interact with electronic systems. Understand how a microcontroller detects button presses and responds to user actions.

Topics Covered:

• What is a Push Button?
• Types of Push Buttons
• Digital Inputs
• Pull-Up and Pull-Down Logic
• Button Debouncing Concept
• Reading Button States using ESP32

🔹 Working with Buzzers

Learn how buzzers are used to provide audio feedback in electronic systems such as alarms, notifications, and security systems.

Topics Covered:

• What is a Buzzer?
• Active vs Passive Buzzer
• Alarm and Notification Applications
• Controlling a Buzzer using ESP32
• Creating Sound Alerts

🔹 Introduction to Digital Sensors

Understand digital sensors and how they communicate with microcontrollers using simple HIGH and LOW signals.

Examples Covered:

• PIR Motion Sensor
• IR Obstacle Sensor
• Reed Switch Sensor
• Limit Switch

Topics Covered:

• Digital Sensor Output
• Reading Sensor Data
• Sensor Applications in Automation
• Event-Based Programming

🔹 Practical Programming Concepts

Students will learn:

• Using digitalRead()
• Conditional Statements (if-else)
• Combining Inputs and Outputs
• Event Triggered Actions

🛠 Practical Project: Button Controlled Smart Light

Students will:

• Connect a Push Button and LED in Wokwi
• Read button input using ESP32
• Turn ON/OFF an LED using the button
• Add a buzzer indication when the button is pressed
• Implement basic smart lighting logic

Real-World Application:

• Smart Room Lighting
• Smart Switch Systems
• Home Automation Controls
• Industrial Control Panels

🗓️ DAY 4: Analog Inputs, LDR Sensor & Potentiometer

🔹 Introduction to Analog Inputs

Learn the difference between digital and analog signals. Understand how ESP32 reads varying voltage levels from sensors and converts them into numerical values using the Analog-to-Digital Converter (ADC).

Topics Covered:

• Digital vs Analog Signals
• What is ADC?
• ESP32 Analog Input Pins
• Reading Analog Values
• Understanding Sensor Data Ranges
• Real-World Analog Sensors

🔹 LDR (Light Dependent Resistor)

Learn how an LDR changes its resistance based on light intensity and how it is used in automatic lighting systems.

Topics Covered:

• What is an LDR?
• Working Principle of LDR
• Measuring Light Intensity
• Day and Night Detection
• Applications of LDR Sensors

Real-World Applications:

• Automatic Street Lights
• Smart Garden Lighting
• Solar Tracking Systems
• Light Monitoring Systems

🔹 Potentiometer

Understand how a potentiometer acts as a variable resistor and how it can be used to simulate sensor values.

Topics Covered:

• What is a Potentiometer?
• Voltage Divider Principle
• Reading Variable Analog Values

• Adjusting Device Parameters
• Sensor Simulation Using Potentiometers

Applications:

• Volume Control
• Brightness Control
• Speed Control
• Sensor Testing

🔹 Practical Programming Concepts

Students will learn:

• analogRead()
• Mapping Sensor Values
• Conditional Statements
• Threshold-Based Automation
• Serial Monitor Data Visualization

🛠️ Practical Project: Automatic Street Light

Students will:

• Interface an LDR with ESP32 in Wokwi
• Read real-time light intensity values
• Detect Day and Night Conditions
• Automatically Turn ON an LED at Night
• Turn OFF the LED during Daylight
• Fine-Tune Light Threshold Values

Real-World Application:

• Smart Street Lighting
• Energy Saving Systems
• Campus Lighting Automation
• Smart City Infrastructure

🗓️ DAY 5: DHT22 Temperature & Humidity Sensor and Data Acquisition

🔹 Introduction to DHT22 Sensor

Learn how environmental conditions such as temperature and humidity are measured using sensors. Understand why monitoring environmental data is important in industries, agriculture, healthcare, and smart homes.

Topics Covered:

• What is a DHT22 Sensor?
• Temperature Measurement
• Humidity Measurement
• Difference Between DHT11 and DHT22
• Sensor Accuracy and Applications
• Digital Data Communication

🔹 Understanding Data Acquisition

Learn the process of collecting, processing, and utilizing data from sensors.

Topics Covered:

• What is Data Acquisition?
• Sensor Data Collection
• Real-Time Monitoring
• Data Processing and Analysis
• Importance of Data in IoT Systems
• Introduction to Environmental Monitoring

Real-World Applications:

• Weather Stations
• Smart Agriculture
• Greenhouse Monitoring
• Industrial Environment Monitoring
• Cold Storage Monitoring
• Smart Buildings

🔹 Reading Sensor Data with ESP32

Students will learn:

• Connecting DHT22 to ESP32
• Using DHT Sensor Libraries
• Reading Temperature Values

• Reading Humidity Values
• Displaying Data on Serial Monitor
• Handling Sensor Updates

🔹 Data Visualization Concepts

Topics Covered:

• Monitoring Live Sensor Data
• Understanding Temperature Trends
• Understanding Humidity Trends
• Interpreting Environmental Conditions

🛠️ Practical Project: Weather Monitoring System

Students will:

• Interface DHT22 Sensor with ESP32 in Wokwi
• Read Real-Time Temperature Data
• Read Real-Time Humidity Data
• Display Sensor Readings on the Serial Monitor
• Create Basic Environmental Monitoring Logic
• Observe Changes in Temperature and Humidity Values

Project Features:

✅ Temperature Monitoring
✅ Humidity Monitoring
✅ Real-Time Data Display
✅ Environmental Data Analysis

Real-World Application:

• Smart Weather Stations
• Agricultural Monitoring Systems
• Greenhouse Automation
• Smart Home Environment Monitoring

🗓️ DAY 6: Ultrasonic Sensor & Distance Measurement

🔹 Introduction to Ultrasonic Sensors

Learn how ultrasonic sensors measure distance using sound waves. Understand how these sensors are widely used in automation, robotics, industrial monitoring, and smart parking systems.

Topics Covered:

• What is an Ultrasonic Sensor?
• Working Principle of Ultrasonic Sensors
• Sound Wave Transmission and Reflection
• Trigger and Echo Pins
• Distance Calculation Method
• Sensor Range and Accuracy

🔹 Distance Measurement Concepts

Understand how objects can be detected and measured without physical contact.

Topics Covered:

• Measuring Distance Using Time of Flight
• Distance Units (cm, meters)
• Object Detection
• Obstacle Sensing
• Contactless Measurement Systems

Real-World Applications:

• Smart Parking Systems
• Obstacle Detection Robots
• Water Tank Level Monitoring
• Vehicle Reverse Parking Sensors
• Industrial Object Detection
• Smart Security Systems

🔹 Programming Ultrasonic Sensors with ESP32

Students will learn:

• Connecting Ultrasonic Sensor to ESP32
• Sending Trigger Pulses
• Receiving Echo Signals
• Calculating Distance

• Displaying Distance Data
• Using Conditional Logic Based on Distance

🔹 Automation Concepts

Topics Covered:

• Threshold-Based Detection
• Presence Monitoring
• Occupancy Detection
• Distance-Based Decision Making

🛠️ Practical Project: Smart Parking System

Students will:

• Interface Ultrasonic Sensor with ESP32 in Wokwi
• Measure Vehicle Distance
• Detect Parking Slot Occupancy
• Indicate Available and Occupied Parking Spaces using LEDs
• Display Real-Time Distance Values
• Create Basic Smart Parking Logic

Project Features:

✅ Vehicle Detection
✅ Parking Slot Monitoring
✅ Real-Time Distance Measurement
✅ Occupancy Status Indication
✅ Smart Automation Logic

Real-World Application:

• Shopping Mall Parking Systems
• Smart City Infrastructure
• Residential Parking Management
• Industrial Vehicle Monitoring

🗓️ DAY 7: Servo Motor Control & Automation Concepts

🔹 Introduction to Servo Motors

Learn how servo motors provide precise angular movement and are widely used in automation, robotics, industrial control systems, and smart devices.

Topics Covered:

• What is a Servo Motor?
• Working Principle of Servo Motors
• Servo Motor Components
• Angular Position Control
• PWM (Pulse Width Modulation) Basics
• Types of Servo Motors

🔹 Understanding Automation Concepts

Explore how automation helps reduce manual effort and improves efficiency in modern systems.

Topics Covered:

• What is Automation?
• Manual vs Automatic Systems
• Sensor-Based Automation
• Decision-Making in Automation
• Automation Workflow
• Real-World Automation Examples

Real-World Applications:

• Automatic Gates
• Smart Door Systems
• Industrial Machines
• Robotic Arms
• Automatic Barriers
• Smart Home Devices

🔹 Controlling Servo Motors with ESP32

Students will learn:

• Interfacing Servo Motor with ESP32
• Understanding Servo Angles
• Writing Servo Control Programs
• Using PWM Signals

• Position Control Techniques
• Triggering Servo Movement

🔹 Logic-Based Automation

Topics Covered:

• Input and Output Relationships
• Event-Based Actions
• Automated Decision Making
• Combining Sensors with Actuators

🛠️ Practical Project: Automatic Gate System

Students will:

• Connect a Servo Motor with ESP32 in Wokwi
• Simulate Gate Opening and Closing
• Control Servo Angle Programmatically
• Create Automatic Gate Logic
• Add Push Button Trigger for Gate Operation
• Understand Real-World Automation Flow

Project Features:

✅ Automatic Gate Opening
✅ Automatic Gate Closing
✅ Servo Position Control
✅ Smart Automation Logic
✅ Real-Time Operation

Real-World Application:

• Society Entry Gates
• Parking Barriers
• Smart Home Entrances
• Industrial Access Control Systems
• Toll Gate Automation

🗓️ DAY 8: WiFi Fundamentals & ESP32 Networking

🔹 Introduction to WiFi Communication

Learn how devices communicate wirelessly over a network and how WiFi enables IoT devices to connect to the internet and exchange data.

Topics Covered:

• What is WiFi?
• How Wireless Communication Works
• Internet vs Local Network
• IP Address Basics
• Routers and Access Points
• IoT Communication Architecture

🔹 ESP32 Networking Fundamentals

Understand the networking capabilities of the ESP32 and how it connects to wireless networks.

Topics Covered:

• Built-in WiFi Features of ESP32
• Station (STA) Mode
• Access Point (AP) Mode
• Connecting ESP32 to WiFi Networks
• Understanding SSID and Password Authentication
• Checking Connection Status

🔹 Network Communication Concepts

Students will learn:

• IP Address Assignment
• Local Network Communication
• Internet Connectivity
• Data Transfer Basics
• IoT Device Communication

Real-World Applications:

• Smart Home Devices
• Remote Monitoring Systems
• IoT Dashboards
• Wireless Sensor Networks
• Industrial IoT Solutions

🔹 Programming ESP32 for WiFi

Topics Covered:

• WiFi Library Introduction
• Connecting to a WiFi Network
• Monitoring Connection Status
• Reconnecting on Network Failure
• Displaying Network Information

🔹 IoT Connectivity Overview

Topics Covered:

• Device-to-Cloud Communication
• Device-to-Device Communication
• Future Use of WiFi in IoT Projects
• Preparing for MQTT and Cloud Integration

🛠 Practical Project: ESP32 WiFi Connection

Students will:

• Configure ESP32 WiFi Settings in Wokwi
• Connect ESP32 to a WiFi Network
• Verify Successful Network Connection
• Display IP Address on Serial Monitor
• Monitor Network Status
• Understand How IoT Devices Access the Internet

Project Features:

✅ WiFi Connectivity
✅ IP Address Monitoring
✅ Network Status Detection
✅ Internet Access Preparation
✅ IoT Communication Foundation

Real-World Application:

• Smart Home Systems
• IoT Sensor Networks
• Cloud-Based Monitoring
• Remote Device Management
• Industrial IoT Solutions

🗓️ DAY 9: Web Servers, HTML Basics & IoT Dashboards

🔹 Introduction to Web Servers

Learn how web servers allow users to interact with IoT devices through a web browser. Understand how ESP32 can host web pages and respond to user requests.

Topics Covered:

• What is a Web Server?
• Client-Server Architecture
• HTTP Request and Response
• How Browsers Communicate with Devices
• ESP32 as a Web Server
• Benefits of Web-Based Control

🔹 HTML Basics

Understand the fundamentals of HTML used to create web pages for IoT applications.

Topics Covered:

• Introduction to HTML
• HTML Page Structure
• Headings and Paragraphs
• Buttons and Forms
• Basic Styling Concepts
• Creating User Interfaces for IoT

🔹 Introduction to IoT Dashboards

Learn how dashboards provide real-time monitoring and control of connected devices.

Topics Covered:

• What is an IoT Dashboard?
• Data Visualization Concepts
• Device Monitoring
• Remote Device Control
• Dashboard Design Principles
• Real-Time Updates

Real-World Applications:

• Smart Home Control Panels
• Industrial Monitoring Systems
• Energy Monitoring Dashboards

• Environmental Monitoring Systems
• Smart Agriculture Platforms

🔹 ESP32 Web Server Programming

Students will learn:

• Creating a Simple Web Server
• Hosting HTML Pages on ESP32
• Handling Browser Requests
• Sending Data from ESP32 to Browser
• Controlling Hardware Through Web Pages

🔹 Browser-Based Device Control

Topics Covered:

• Web Buttons for Device Control
• Real-Time Interaction
• User-Friendly Interfaces
• Remote Access Concepts

🛠️ Practical Project: Control LED Using Web Browser

Students will:

• Create a Simple HTML Web Page
• Host the Page on ESP32
• Add ON/OFF Control Buttons
• Access the Web Page from a Browser
• Control an LED Wirelessly
• Monitor Device Status in Real Time

Project Features:

✅ ESP32 Web Server
✅ Browser-Based Control
✅ HTML Interface Design
✅ Wireless Device Control
✅ Real-Time Interaction

Real-World Application:

• Smart Home Automation
• Remote Device Management
• Industrial Equipment Control

📅 DAY 10: MQTT Fundamentals & Device Communication

🔹 Introduction to MQTT

Learn about MQTT (Message Queuing Telemetry Transport), one of the most widely used communication protocols in IoT systems. Understand how devices exchange data efficiently over the internet.

Topics Covered:

• What is MQTT?
• Why MQTT is Used in IoT
• Advantages of MQTT
• Lightweight Communication Protocol
• MQTT Architecture
• Real-Time Data Exchange

🔹 MQTT Components

Understand the key elements involved in MQTT communication.

Topics Covered:

• MQTT Broker
• MQTT Client
• Topics
• Messages
• Publish and Subscribe Model
• Data Flow in MQTT Networks

🔹 Publisher & Subscriber Concept

Learn how IoT devices communicate using the Publisher-Subscriber model.

Topics Covered:

• What is a Publisher?
• What is a Subscriber?
• Sending Data to Topics
• Receiving Data from Topics
• Multiple Device Communication
• Real-Time Event Handling

Real-World Applications:

• Smart Home Automation
• Industrial Monitoring Systems

• Smart Agriculture
• Asset Tracking
• Environmental Monitoring
• Vehicle Tracking Systems

🔹 MQTT Communication with ESP32

Students will learn:

• Connecting ESP32 to MQTT Broker
• Creating MQTT Topics
• Publishing Sensor Data
• Subscribing to Commands
• Handling Incoming Messages
• Monitoring Communication

🔹 IoT Communication Architecture

Topics Covered:

• Device-to-Cloud Communication
• Device-to-Device Communication
• Remote Monitoring Systems
• Real-Time Notifications

🛠️ Practical Project: MQTT Device Communication

Students will:

• Connect ESP32 to an MQTT Broker
• Publish Messages from ESP32
• Subscribe to MQTT Topics
• Send Commands Between Devices
• Monitor Data Exchange in Real Time
• Simulate IoT Communication Systems

Project Features:

✅ MQTT Broker Communication
✅ Publisher & Subscriber Model
✅ Real-Time Messaging
✅ Remote Device Control
✅ Cloud-Based Communication

Real-World Application:

- Smart Home Devices
- Industrial IoT Systems
- Remote Monitoring Solutions
- Smart City Infrastructure
- Connected Sensor Networks

🗓️ DAY 11: ThingsBoard Introduction, Device Creation & Dashboard Design

🔹 Introduction to ThingsBoard

Learn how cloud platforms are used to collect, store, monitor, and visualize IoT data in real time. Understand why ThingsBoard is one of the most popular open-source IoT platforms.

Topics Covered:

• What is ThingsBoard?
• Importance of Cloud Platforms in IoT
• ThingsBoard Architecture
• Devices, Assets, and Dashboards
• Real-Time Data Monitoring
• IoT Data Visualization

🔹 Device Creation in ThingsBoard

Learn how IoT devices are registered and managed on the cloud platform.

Topics Covered:

• Creating a ThingsBoard Account
• Creating a New Device
• Device Credentials and Access Tokens
• Device Management
• Understanding Telemetry Data
• Device Connectivity Overview

🔹 Dashboard Design

Understand how dashboards help monitor and control IoT devices through graphical interfaces.

Topics Covered:

• What is a Dashboard?
• Dashboard Widgets
• Gauge Widgets
• Charts and Graphs
• Numeric Displays
• Real-Time Monitoring Panels
• Dashboard Customization

Real-World Applications:

• Industrial Monitoring
• Smart Agriculture

• Environmental Monitoring
• Energy Management Systems
• Smart Building Automation
• Water Quality Monitoring

🔹 ESP32 Cloud Integration

Students will learn:

• Connecting ESP32 to ThingsBoard
• Sending Data to the Cloud
• Device Authentication
• Publishing Sensor Data
• Monitoring Data Remotely

🔹 Telemetry and Data Visualization

Topics Covered:

• Temperature Data Monitoring
• Humidity Monitoring
• Historical Data Analysis
• Live Dashboard Updates
• Understanding Sensor Trends

🛠️ Practical Project: Send Sensor Data to Cloud

Students will:

• Create a Device in ThingsBoard
• Obtain Device Access Token
• Connect ESP32 to ThingsBoard
• Send DHT22 Temperature Data
• Send Humidity Data
• Create a Real-Time Dashboard
• Visualize Sensor Data Using Charts and Gauges

Project Features:

✅ Cloud Connectivity
✅ Device Registration
✅ Real-Time Data Monitoring
✅ Dashboard Creation
✅ Sensor Data Visualization
✅ Remote Access to IoT Devices

Real-World Application:

- Smart Weather Stations
- Industrial Monitoring Systems
- Smart Agriculture Solutions
- Environmental Monitoring Platforms
- Remote Asset Monitoring

🗓️ DAY 12 & DAY 13: Industrial IoT Project Challenge

🔹 Real Industry Project Assignment

In these two sessions, students will move beyond guided learning and work on a real-world industrial IoT project based on actual industry requirements.

Students will be assigned an ongoing industry-inspired project similar to those deployed in manufacturing plants, smart buildings, utilities, agriculture, or monitoring systems.

The objective is to help students experience how engineers analyze requirements, design solutions, develop applications, and prepare projects for deployment.

🔹 Project Development Process

Students will learn:

• Understanding Client Requirements
• Problem Analysis
• Selecting Sensors and Components
• Designing System Architecture
• Data Flow Planning
• Dashboard Design
• IoT Device Programming
• Testing and Validation
• Project Documentation

🔹 Sample Industry Projects

Projects may include:

• Smart Water Tank Monitoring System
• Industrial Temperature Monitoring System
• Smart Energy Monitoring System
• Environment Monitoring System
• Smart Agriculture Monitoring
• Warehouse Monitoring System
• Occupancy Monitoring System
• Industrial Asset Monitoring
• Cold Storage Monitoring System
• Smart Pump Automation

🔹 Day 12 Activities

• Project Requirement Discussion
• Understanding Use Cases

• System Design Planning
• Hardware and Sensor Selection
• Dashboard Planning
• Initial Development

🔹 Day 13 Activities

• Project Development Completion
• Testing and Debugging
• Dashboard Integration
• Data Monitoring
• Final Demonstration
• Project Review

🛠 Project Deliverables

Each student/team will submit:

✅ Project Architecture Diagram
✅ ESP32 Source Code
✅ Wokwi Simulation
✅ Dashboard Design
✅ Project Report
✅ Final Demonstration

🔹 Industry-Oriented Learning

These projects are inspired by real deployment scenarios and are designed to simulate actual industrial requirements and engineering workflows.

Students will experience how IoT solutions are developed from concept to deployment.

🗓️ DAY 14: Project Completion, Dashboard Enhancement & Deployment Concepts

🔹 Project Finalization

Students will:

• Complete Pending Features
• Optimize Code
• Fix Bugs and Errors
• Improve User Interface
• Validate Sensor Data

🔹 Dashboard Enhancement

Topics Covered:

• Professional Dashboard Design
• Charts and Gauges
• Alarm Widgets
• Data Visualization Techniques
• Dashboard Best Practices

🔹 Deployment Concepts

Learn how IoT solutions move from prototype to production.

Topics Covered:

• Simulation vs Real Hardware
• Site Deployment Workflow
• Device Configuration
• Network Planning
• Remote Monitoring
• Maintenance Strategies

🔹 Project Testing

• Functional Testing
• Performance Validation
• Error Handling
• System Demonstration

🛠️ Practical Activity

Prepare final project for demonstration and deployment review.

📅 DAY 15: Project Presentation, Certificate & IoT Career Roadmap

🔹 Final Project Presentation

Each student/team will:

• Present Their Project
• Explain Problem Statement
• Explain System Architecture
• Demonstrate Dashboard
• Show Working Simulation

🔹 Technical Discussion

• Project Review
• Improvement Suggestions
• Industry Expectations
• Best Practices

🔹 IoT Career Roadmap

Topics Covered:

• IoT Engineer Roles
• Embedded Engineer Roles
• Industrial IoT Opportunities
• Freelancing Opportunities
• Startup Opportunities
• Building an IoT Portfolio

🔹 Resume & LinkedIn Guidance

• Building a Technical Resume
• Showcasing IoT Projects
• Creating a Professional LinkedIn Profile
• Internship Preparation

🔹 Interview Preparation

• Common IoT Interview Questions
• ESP32 Questions
• MQTT Questions
• Sensors & Networking Questions

🎖 Course Completion

- Project Evaluation
- Feedback Session
- Certificate Distribution
- Next Learning Path