



**QUILLANCE
INFOTECH PVT LTD.**

Embedded Systems

The Quillance Embedded Systems Program is a complete beginner-to-advanced training program designed to help learners master embedded systems, microcontrollers, IoT development, electronics programming, hardware interfacing, automation systems, and real-time embedded applications used in modern industries and smart technologies worldwide.



Program Overview

What You Will Learn

- Understand embedded systems and electronics fundamentals
- Learn microcontrollers, sensors, and hardware interfacing
- Develop embedded applications using Embedded C and Arduino
- Build IoT and automation-based smart systems
- Understand communication protocols and real-time systems
- Work with real-world embedded and IoT applications

Career Opportunities

After completing this program, learners can apply for roles such as:

- Embedded Systems Engineer
- IoT Developer
- Electronics Design Associate
- Automation Engineer
- Firmware Developer
- Embedded Systems Intern

Live Projects You'll Build

- **Project 1 – Smart LED & Sensor Control System**

Build sensor-based automation systems using microcontrollers.

- **Project 2 – Temperature & Environmental Monitoring System**

Develop IoT-based monitoring systems for environmental data collection.

- **Project 3 – Smart Home Automation System**

Create automation systems for controlling smart devices and appliances.

- **Project 5 – IoT-Based Industrial Monitoring Dashboard**

Build industrial IoT systems with real-time monitoring and analytics.

- **Project 6 – Autonomous Embedded Automation Project**

Develop advanced automation systems using sensors, controllers, and communication modules.

- **Project 4 – RFID & Security Access System**

Develop embedded security and authentication systems.

MODULE 1

Electronics & Embedded Systems Fundamentals

TOPICS COVERED:

- Introduction to Embedded Systems
- Basics of Electronics & Circuit Design
- Analog & Digital Electronics Fundamentals
- Microcontrollers & Embedded Architecture
- Components, Sensors & Actuators
- Embedded Systems Industry Application

SKILLS GAINED:

- Electronics Fundamentals
- Embedded System Understanding
- Hardware Component Knowledge
- Circuit Analysis Skills

PRACTICAL LEARNING:

- Understand electronics components and circuits
- Explore embedded system architecture
- Analyze sensor and actuator workflows
- Learn hardware fundamentals and applications

MODULE 2

Embedded C Programming & Microcontrollers

TOPICS COVERED:

- C Programming Fundamentals
- Embedded C Concepts & Syntax
- Microcontroller Programming Basics
- GPIO, Timers & Interrupts
- Serial Communication Protocols
- Debugging & Embedded Software Testing

SKILLS GAINED:

- Embedded C Programming Skills
- Microcontroller Development Knowledge
- Embedded Debugging Techniques
- Hardware Programming Understanding

PRACTICAL LEARNING:

- Write Embedded C programs
- Control hardware components using code
- Work with communication interfaces
- Practice debugging and testing workflows

MODULE 3

Arduino, Sensors & Hardware Interfacing

TOPICS COVERED:

- Introduction to Arduino Platform
- Sensor & Actuator Interfacing
- LCD, Keypad & Display Modules
- Motor Control & Automation Basics
- Communication Modules & Connectivity
- Embedded Hardware Prototyping

SKILLS GAINED:

- Hardware Interfacing Skills
- Arduino Development Knowledge
- Sensor Integration Understanding
- Automation System Basics

PRACTICAL LEARNING:

- Build Arduino-based projects
- Interface sensors and displays
- Create automation systems
- Prototype embedded hardware applications

IoT & Communication Systems

TOPICS COVERED:

- Introduction to IoT Systems
- Wi-Fi, Bluetooth & Wireless Communication
- MQTT & IoT Communication Protocols
- Cloud Connectivity for IoT Devices
- Real-Time Monitoring Systems
- Smart Device & IoT Security Basics

SKILLS GAINED:

- IoT Development Skills
- Wireless Communication Knowledge
- Cloud Connectivity Understanding
- Smart Device Integration Skills

PRACTICAL LEARNING:

- Connect embedded devices to cloud systems
- Build IoT communication workflows
- Monitor sensor data remotely
- Explore wireless communication technologies

Advanced Embedded Systems & Automation

TOPICS COVERED:

- Real-Time Operating Systems (RTOS) Basics
- Industrial Automation Concepts
- Advanced Embedded Communication Systems
- Robotics & Intelligent Embedded Systems
- Embedded System Optimization Techniques
- Industrial IoT & Smart Automation

PRACTICAL LEARNING:

- Explore industrial automation systems
- Understand RTOS and scheduling concepts
- Work with advanced embedded applications
- Analyze intelligent embedded workflows

ADVANCED CONCEPTS INCLUDED:

- RTOS Workflow Understanding
- Industrial Embedded Applications
- Intelligent Automation Systems
- Robotics Integration Concepts
- Embedded Optimization Techniques
- Smart Industry & IoT Applications

SKILLS GAINED:

- Advanced Embedded Development Skills
- Industrial Automation Knowledge
- RTOS Understanding
- Intelligent System Development Expertise

Live Embedded Project & Team Collaboration

TOPICS COVERED:

- Embedded Project Planning Workflow
- Hardware & Software Integration
- IoT System Development & Testing
- Automation Workflow Implementation
- Team Collaboration & Documentation
- Final Embedded Project Presentation

SKILLS GAINED:

- Real-World Embedded Experience
- Team Collaboration Skills
- IoT Workflow Understanding
- End-to-End Embedded System Development

PRACTICAL LEARNING:

- Work on embedded and IoT projects
- Build automation workflows and prototypes
- Collaborate in engineering teams
- Present embedded solutions professionally

Module 7

Placement & Career Preparation

TOPICS COVERED:

- Resume Building & ATS Optimization
- LinkedIn & Professional Branding
- Embedded Systems Interview Preparation
- Hardware & Coding Practice Sessions
- Mock Interviews & HR Preparation
- Career Guidance & Industry Exposure

CAREER SUPPORT INCLUDES:

- Resume & LinkedIn Reviews
- Mock Technical Interviews
- Internship & Placement Assistance
- Embedded Portfolio Guidance
- Career Mentorship Sessions
- Professional Communication Training

SKILLS GAINED:

Students will be prepared for internships, embedded engineering roles, IoT opportunities, and automation industry careers.



**QUILLANCE
INFOTECH PVT LTD.**

Thank You!!



Mail
info@quillance.com



Website
www.quillance.com