

INFOSOFT IT SOLUTIONS

Training | Projects | Placements

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EMBEDDED C PROGRAMMING

Introduction to Embedded Systems

- Overview of Embedded Systems
- Embedded Systems Components and Architecture
- Introduction to Microcontrollers and Microprocessors

Basics of C Programming

- Variables, Data Types, and Operators
- Control Structures: Decision Making and Loops
- Functions and Scope
- Arrays and Strings
- Pointers and Memory Management

Introduction to Embedded C

- Key Differences Between C and Embedded C
- Memory Mapped I/O
- Bitwise Operators and Manipulation

Embedded C Development Tools

- IDEs and Text Editors for Embedded C
- Cross-Compilers and Toolchains
- Debugging Techniques and Tools

Peripheral Interfacing

- GPIO Programming
- Serial Communication (UART, SPI, I2C)
- Timers and Counters
- Analog-to-Digital and Digital-to-Analog Conversion (ADC/DAC)
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Real-time Operating Systems (RTOS)

- Introduction to RTOS Concepts
- Task Scheduling and Priority
- Inter-Task Communication and Synchronization

Embedded C Best Practices

- Coding Standards and Guidelines
- Optimization Techniques
- Memory Management and Allocation

Case Studies and Project Work

- Designing Embedded Systems Projects
- Implementation and Testing
- Project Presentation and Documentation

Advanced Topic

- Wireless Communication Protocols (Bluetooth, Wi-Fi)
- Security Considerations in Embedded Systems
- IoT Integration and Connectivity