MICROSOFT TRAINING

Embedded Systems Using C Training Course

Master embedded systems development using C programming. Learn to design, code, and debug real-time applications effectively.

DURATION
2 hours

LEVEL
Intermediate

FORMAT
Instructor-Led

- Globally Recognized Certification
- Expert-Led Hands-On Training
- Flexible Scheduling

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COURSE OVERVIEW

This intermediate-level "Embedded Systems Using C" training course from Microsoft is meticulously designed to equip learners with the foundational knowledge and practical skills required to develop software for resource-constrained embedded systems. Participants will delve into the intricacies of C programming tailored specifically for hardware interaction, understanding how to manage memory efficiently, and implement robust low-level applications. The course emphasizes practical application, preparing you to write optimized and reliable code that forms the backbone of countless modern devices, from IoT gadgets to industrial control systems.

By completing this concise yet impactful course, you will gain a strong understanding of the core principles governing embedded software development using C. You'll learn essential techniques for low-level programming, including bit manipulation, understanding memory-mapped I/O, and the fundamentals of interrupt-driven systems. This skillset is invaluable for anyone looking to enter the burgeoning fields of IoT, automation, or specialized hardware development, providing a solid stepping stone for further specialization and career advancement in embedded technologies.

Duration	2 hours
Level	Intermediate
Vendor	Microsoft

COURSE CURRICULUM

01 Module 1: Foundations of Embedded C

- Introduction to Embedded Systems: Characteristics and Applications
- C Language Review: Data Types, Operators, Control Flow (Embedded Context)
- Memory Organization in Embedded Systems: Flash, RAM, Registers
- Understanding Pointers and Memory Addresses for Hardware Access

02 Module 2: Interacting with Hardware using C

- Bitwise Operations for Direct Register Manipulation
- Introduction to General Purpose Input/Output (GPIO) Concepts
- The `volatile` Keyword: Ensuring Correct Memory-Mapped I/O
- Basic Interrupt Concepts and Interrupt Service Routines (ISRs)

03 Module 3: Embedded Software Development Principles

- Developing Robust and Efficient C Code for Constrained Environments
- Overview of Embedded Development Toolchains (Compilers, Linkers, Debuggers)
- Best Practices for Embedded C Coding: Readability, Maintainability, Efficiency
- Structuring a Simple Embedded Application Project

CAREER PATHWAYS

Graduates of this program are prepared for the following roles:

> **Junior Embedded Software Developer**

> **Firmware Programming Assistant**

> **IoT Device Software Technician**

FREQUENTLY ASKED QUESTIONS

Q: What specific C programming knowledge should I have before enrolling in this intermediate course?

This course assumes you have a foundational understanding of general C programming syntax, including variables, functions, arrays, and basic control structures. We will specifically focus on C concepts critical for embedded systems, such as advanced pointer usage, memory management, and bitwise operations, but a prior general C exposure is essential to maximize your learning from this course.

Q: How does this 2-hour course prepare me for real-world embedded systems development, given its brief duration?

While concise, this course is designed to provide a targeted, high-impact introduction to the fundamental concepts and C programming techniques indispensable for embedded systems. It lays a crucial theoretical and conceptual groundwork, equipping you with the specialized C skills to effectively understand and interact with hardware. This serves as an excellent springboard for more advanced projects, specialized training, and understanding industry-standard embedded development practices.

Q: Will this course cover specific microcontrollers or development boards, or is it more conceptual?

Given its 2-hour duration and intermediate level, this course focuses primarily on the core C programming principles and embedded system concepts that are universally applicable across various microcontroller architectures. While specific hardware examples might be used for illustration, the emphasis is on the underlying C techniques, memory interaction, and design patterns rather than deep dives into particular vendor-specific hardware peripherals or development boards. This approach ensures the knowledge gained is broadly transferable.

ABOUT COMPUTER PRIDE

computerpride

East Africa's Premier IT Training Center

With over 15 years of excellence, Computer Pride delivers globally recognized certification programs from leading technology vendors. Located on Kenyatta Avenue in Nairobi's CBD, our state-of-the-art facilities and expert instructors have empowered thousands of professionals across East Africa.

15+	10,000+	50+
Years of Excellence	Professionals Trained	Vendor Certifications

READY TO ENROL?

Take the next step in your technology career.

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