AMIT

Embedded Systems Diploma

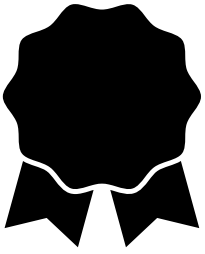
ISO 9001

Diploma Overview

AMIT introduces an intensive +175 hours diploma paving your way to develop your skills as a professional Embedded Systems Engineer

Sessions available Offline and Live

World class instructors working in the biggest multinationals



ISO 9001 Certified

Why AMIT ?

+10
Years of Experience and still counting

+12,000
Satisfied Student

+100
Instructor and Expert

Accredited By:

ISO 9001:2015

نقابة التطبيقيين

itida

Ministry of Communications and Information Technology

cisco Networking Academy Partner

Our Clients


LG


MUST
KNOWLEDGE IS POWER


SAMSUNG


DON BOSCO


BUE


الهيئة العربية للتصنيع
مصنع الالكترونيات


NARSS


OMS


TOSHIBA


RedJani
E-SHOP


ORASCOM
CONSTRUCTION


le cadeau


L'AZURDE


RWF
ROSEWOOD
FURNITURE


مواصلات الإمارات
Emirates Transport


ALPHA
ELECTRONICS


MBRF
HOLDING
إم بي آر إف
قابضة


Qindeel | قنديل


ELSEWEDY
ELECTRIC


الإمارات
UAE
FA


Arab
Affiliate
Summit


AEC


finance

Our Diploma Guarantees:

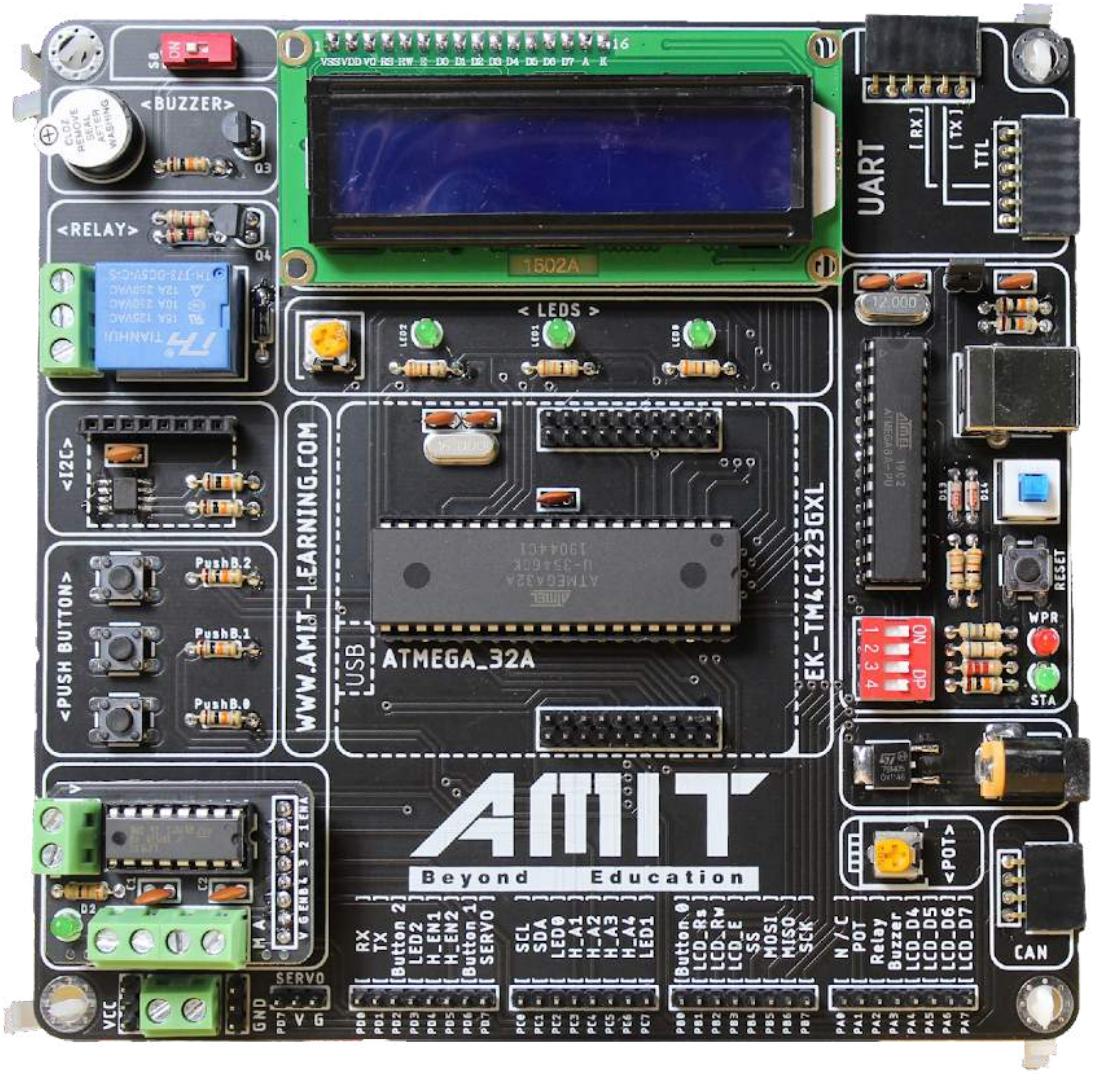
- Mastering the Mother of Programming Languages : C Programming
- Enhancing the C programming skills with advanced computer science topics such as Algorithms and Data Structure.
- Mastering the chain tool practically
- Getting familiar with industrial software configuration tools with GIT
- Customizing C programming for embedded systems - Embedded C
- Deep knowledge in Computer Architecture
- Deep knowledge in microcontrollers types and architecture
- Mastering microcontroller internal peripherals
- Building a professional software as it should be built in embedded systems in big companies
- Various applications on interfacing with microcontrollers - AVR ATmega 32
- Using revolutionary modules such as : Bluetooth (how microcontrollers can receive or transmit using Bluetooth)

Our Diploma Guarantees:

- Getting familiar with different Architectures - ARM CortexM4
- Intensive Real Time Operating Systems Course
- How to use microcontroller with OS (Kernel)
- Mastering RTOS scheduling algorithms
- Measuring the inter tasks communications
- Getting familiar with Bus technology used in the Automotive industry

  - CAN and LIN

Free ATmega 32 Kit for each student



Why to Embedded Systems ?

Career Chances

Work in the world's greatest multinational companies

High Demand

The demand for embedded systems engineers is growing rapidly recently

Attractive Salaries

Embedded engineering is one of the most highly paid professions

Diploma Outlines

Outlines

1. Introduction

- What is embedded systems
- Embedded Systems Application
- Difference between MCU and MP
- Memories
- Addressing I/O devices
- Microcontroller Categorize And Providers

2. C Programming & Data Structure

- Hello c, data types, operators
- Rest of operators, if switch case loops
- Function and modular programming
- C building process
- Pointers
- Arrays , strings
- Structures and unions
- Standard C library
- Stack, Linked list ,Queue
- Searching algorithms
- Sorting algorithms
- C Exam

3. Embedded system Tools

- Software configuration management (GIT)
- Emulator

- Debugger
- IDE
- Preprocessor
- Compiler
- Assembler
- Linker
- Make file

4. Computer Architecture

- Computer Architecture
- CISC vs RISC
- Processor Design
- Memory Types
- MCU Internal Architecture
- Introduction to MCU peripherals

5. Embedded C

- Bit Math
- Qualifiers Keywords (volatile and const)
- Design Concepts
- Device Drivers
- Layered Architecture Motivation

6. Microcontroller Interfacing AVR &ARM

- Microcontroller (AVR ATmega 32)
- Configuration Types (pre build, Linktime, Post build
- I/O Ports
- AVR DIO module
- ATmega 32 data sheet
- Layered architecture in Embedded Software (case study is AVR)
- LCD and Keypad driver
- Interrupts
- ADC and Sensors
- Stepper motor, SERVO motor, DC motor
- General Purpose timer
- Timers and PWM interfacing
- UART Interface
- SPI
- I2C
- Overview on ARM architecture
- ARM Cortex-M4 and ARM Cortex-M3 Specifications
- TM4C123GH6PM Microcontroller Peripherals
- TIVA TM4C123GH6PM Launchpad
- Startup Code
- GPIO Interface with applications

7.RTOS

- Design patterns
- Foreground/background systems
- Real time systems

- Types of real time systems
- Multi-tasking vs Multi-processing
- Scheduling algorithms
- FreeRTOS Porting to TivaC and ATMEGA32
- Tasks creation
- Task states
- Task control
- Task utils
- Shared resource problem
- Race condition
- Reentrancy
- Critical sections
- Queue management Using queues Semaphores
- Binary semaphores
- Counting semaphores
- Priority inversion and deadlocks
- Mutex
- Priority inheritance

8.ISTQB **(FREE)**

- What is software quality
- Improving quality
- QC&QA
- Verification and validation
- Static verification

- Dynamic verification
- Test case structure & design
- Nonfunctional test
- Test automation
- Test planning

9. Automotive Bus technology

- Introduction
- Basic concepts
- Frame formats
- Error detection
- Error Handling
- CAN protocol versions
- LIN Bus

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