Information Technology Institute

PROFESSIONAL TRAINING PROGRAM

2021/2022

EMBEDDED SYSTEMS
Track Overview

People Develop Countries…
We Develop People

Embedded Systems

DESCRIPTION

ITI – (Embedded Systems) Specialization - is a product based program. By enrolling in this program, you will:

- Gain essential knowledge of embedded systems design and programming, learn how to program an embedded device, increase your understanding of real-time operating systems, explore the latest embedded technologies as well as utilize tools to optimize embedded systems designs.

WHO MAY APPLY

Graduates of:
- Computer Engineering
- Communications Engineering
- Control Engineering
- Electronics Engineering
- Mechatronics Engineering
- Biomedical Engineering
- Electrical Power Engineering
- Computer Science

TRACK DURATION

999 Hours about 9-months (learning and project).

DELIVERY APPROACH

Blended between Self-paced, Synchronous Learning and Guided Practices with a Project Based Focused Journey.

Embedded Systems

These topics will be discussed with you in the interviews:
- **C Programming Fundamentals** by studying this course at Udemy https://www.udemy.com or other resources that you prefer
- **Introduction to Embedded Systems** at https://www.coursera.org
- **Hardware/Software Interfacing** at https://www.udemy.com
- **Software Development Processes** at https://www.coursera.org
- **Real-Time Systems** at https://www.coursera.org
- **ITI values** that could be found here: http:// www.iti.gov.eg/Site/AboutUs

GRADUATE PROFILES

- Embedded Software/Firmware Engineer
- Embedded Linux Engineer
- Embedded Automotive Engineer
- Software Tooling Engineer

TRACK PRACTICES

Candidates may work together in one of the following Suggested Projects:
- Flash Over The Air "FOTA"
- AUTOSAR
- Test Bench
- IOT Based Projects
- Robotics Based Projects
- Artificial Intelligence based Project

Embedded Systems

Software Development Fundamentals

- Operating Systems Fundamentals
- Software Engineering for Embedded Systems
- Introduction To Programming
- Data Structures and Algorithms
- Object-Oriented Programming Concepts
- Java Programming For Industrial Engineering

Embedded Systems Software

- Introduction to Embedded Systems
- Embedded C Programming
- Real Time Operating Systems
- VLSI Design: Programmable Devices
- Matlab/Simulink for Embedded Systems

Embedded Hardware

- Embedded Computer Architecture
- Hardware/Software Interfacing
- Advanced Microprocessor
- Introduction to PCB Design
- Multiprocessor Communication Systems

Embedded Systems

Embedded Systems Knowledge

- Embedded System Development Tools
- Verification and Testing of Embedded Systems
- Embedded Linux

Automotive Application

- Automotive Bus Technology Standards
- Device Driver "AUTOSAR"

Consumer Appliances

- Introduction to Robotics "Elective"
- Artificial Intelligence and Machine Learning "Elective"
- Digital Signal Processing for Embedded Systems "Elective"
- Wireless Communication Systems "Elective"
- Introduction to IoT "Elective"
- Microcontrollers for the IoT "Elective"

Innovation and Life Skills

- Communication Essentials for Professionals
- High Impact Presentations
- Progressive Teamwork (Workshop)
- Professional Demeanor (Workshop)
- Best Practices For Remote Working (Workshop)
- Job Seeking Skills