

Certificate of training

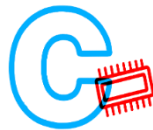
Awarded to :

Hazem BOUKOUBA

For having participated and assiduously attended the entire **C language for embedded systems** module as part of the **CSF-RCP®** training series in embedded development which took place during **March, April and May 2023** in **Ariana, Tunisia**.

Training highlights:

- Remind of the basics in C.
- Structured software design.
- The memory organization.
- ANSI standards and the basic rules of MISRA.
- The development of drivers (.c / .h drivers).
- Rules for effective debugging.
- Practical labs/workshops on STM32F4 Discovery kit.



Higher Training Center

Trainings by on-field experts...

Centre Supérieur de Formation
C.S.F.
MF: 1595071 C/11/11/000
Tél: (+216) 92 626 433
Av. Fethi Zouhir - Enkhilet - Ariana

A large, stylized handwritten signature in black ink, overlapping the contact information of the Higher Training Center.

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Awarded to :

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For having participated and assiduously attended the entire **Object-oriented programming (C++)** and **QT based HMI for embedded systems** module as part of the **CSF-RCP®** training series in embedded development which took place during **March, April and May 2023** in **Ariana, Tunisia**.

Training highlights:

- Introduction to the Object-Oriented Programming.
- Constructors/Destructors.
- Operator overloading.
- Methods and properties.
- Encapsulation/Polymorphism.
- Development of a QT API based HMI communicating with a hardware platform.



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For having participated and assiduously attended the entire **Architecture and programming of STM32 Microcontrollers** module as part of the **CSF-RCP®** training series in embedded development which took place during **March, April and May 2023** in **Ariana, Tunisia**.

Training highlights:

- Understanding the features and peripherals of the STM32F4xx microcontroller.
- Get familiar with the STM32F4xx firmware.
- Get familiar with the development environment around the STM32F4xx.
- Practical Labs and applications on the different peripherals of the STM32F4xx microcontroller.



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For having participated and assiduously attended the entire **Embedded and real time Linux** module as part of the **CSF-RCP®** training series in embedded development which took place during **March, April and May 2023** in **Ariana, Tunisia**.

Training highlights:

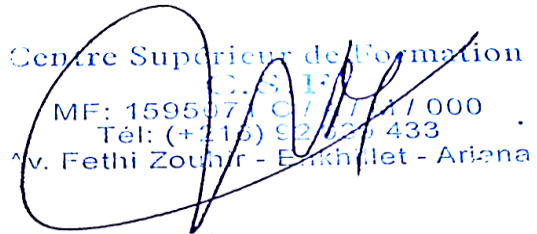
- The Linux operating system.
- Virtualization.
- Kernel configuration.
- Kernel compilation.
- Cross compilation.
- Bootloader.
- Debugging with GDB.
- Real time embedded systems.



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For having participated and assiduously attended the entire **Embedded Linux platform architecture and configuration with Python** module as part of the **CSF-RCP®** training series in embedded development which took place during **March, April and May 2023** in **Ariana, Tunisia**.

Training highlights:

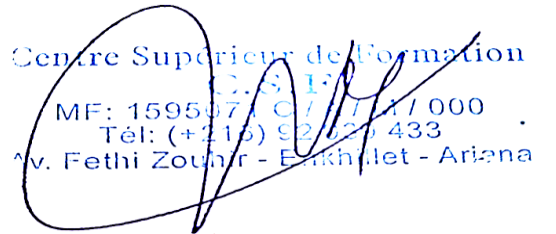
- Prepare, configure and install a Linux image for a hardware platform.
- Development with Python for robotics, IoT and real time on embedded Linux platform.
- Configuration of communication devices and interfaces.
- Interfacing with sensors / actuators.
- Use of popular packages and libraries.



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For having participated and assiduously attended the entire **Application in C++ on Linux environment for embedded Linux platform** module as part of the **CSF-RCP®** training series in embedded development which took place during **March, April and May 2023** in **Ariana, Tunisia**.

Training highlights:

- Develop an application in object oriented C ++ language on embedded Linux environment.
- Recover and manipulate data from the hardware platform based on embedded Linux.
- Communicate with a remote server.



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