

Microcontroller Programming

Winter 2026

Teachers

Teacher	Email	Office
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General information

Aim of the course

Microcontroller Programming Course

Teaching programme

The course is designed to analyze the different features of the microcontroller with a practical approach. This is done by going directly to solve some typical control problems, making best use of the devices internal to the chip. During the course will be described the architecture and internal units of an ARM Cortex-M4 microcontroller; Interfacing of analogue and digital signals, including basics of electronics; Serial communications; Low level programming in C, interrupts service routines; Management of parallel processes without the aid of an operating system, process priority, timing analysis; Instruction and register sets and addressing modes for a given microcontroller family; Efficiency aspects on different data types and code snippets in C; Development tools.

Credits: 4 CFUs

Duration: 12 hours

Language

English

Exam modality

Written examination consisting of multiple-choice and open-ended questions

Bibliography

Official technical documentation (application notes, user manuals)

Registration

Interested students must send a request via email to the course instructor, including full name and affiliation.

Timetable

Topic	Day	Time	Where
Cortex M4, GPIO	01/04/2026	10:00-14:00	Lab Mattera Nr 2, ExCNR Via all'Opera Pia 11 1st floor
Timer, Interrupt, UART	08/04/2026	10:00-14:00	Lab Mattera Nr 2, ExCNR Via all'Opera Pia 11 1st floor
DMA, ADC, Integration	15/04/2026	10:00-14:00	Lab Mattera Nr 2, ExCNR Via all'Opera Pia 11 1st floor

Exam schedule

Date	Where
22/04/2026	Lab Mattera Nr 2, ExCNR Via all'Opera Pia 11 1st floor