Microprocessors and embedded systems

Professor: Riccardo de Asmundis ☎**081 676179** **email: Riccardo.deasmundis@na.infn.it.**

SSD	FIS/01	Course Credit	8	Year (I, II)	II	Semester (I , II)	II

CONTENTS

Principles of microprocessors, microcontrollers, and their differences. Programming of microcontrollers.
Competitive processes, multithreading, race conditions and priority inversion.
Hints to the S.O. Real Time. Application design templates. Machine code view. ARM-Cortex architecture.
IDE environments for integrated programming. The IAR environment and the use of C.
Use of register-based programming. Programming in assembly language. ST libraries for programming.
The ST-CUBE-mx instrument for the configuration of the ARM Cortex microcontroller devices of ST Microelectronics.
Interaction with peripherals: Digital I / O, analogue inputs, analogue outputs on DAC. Timers and their programming.

BIBLIOGRAPHY

Scheda a microcontrollore STM-Discovery F4. Documentazione su scheda, su microcontrollore utilizzato. Documentazione su architettura ARM. Doc. su ambiente di sviluppo IAR, ST-Cube MX.
Tutta la documentazione è disponibile su siti online, sia di ST-Microelectronics che di terze parti.