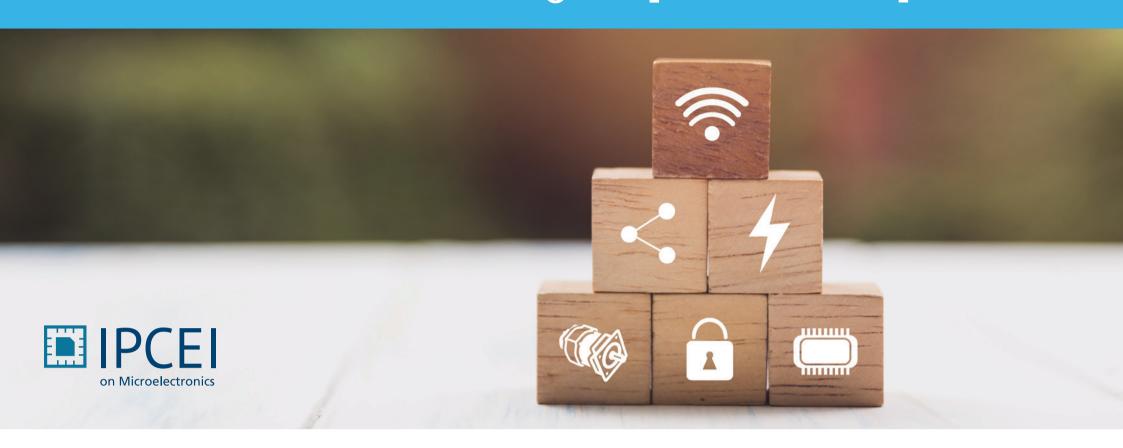








STMicroelectronics Leading to System Development



STMicroelectronics, in collaboration with the Master's Degree Course in Electronics Engineering, proposes the course "STMicroelectronics Leading to System Development" as "Stage and Others" (30 hours, 6 CFU).

Lessons will be held each Tuesday and Thursday starting from 20th April to 13rd May 2021.

Programma

Tue 20 Apr	10:00 / 12:00	 General presentation Company presentation Introduction to the covered topics Systems presentation System general description and main components 	A. Basile
	13:00 / 15:00	 Introduction to Microcontrollers General Main Peripherals: GPIO, Timers, ADC, Communication interfaces, Power Controller 	M.C. Virzì
Thu 22 Apr	10:00 / 12:00	 Introduction to Microcontrollers STM32 family overview STM32 ODE Overview: MCU EcoSystem, Nucleo, X-Nucleo, SW development Tools outline 	M.C. Virzì
	13:00 / 15:00	Introduction to Microcontrollers • Tools: CubeMX, CubeIDE	M.Branciforte
Tue 27 Apr	10:00 / 12:00	Introduction to Microcontrollers • Practical Examples	M.Branciforte
	13:00 / 15:00	MEMS Sensors Overview	A. Basile
Thu 29 Apr	10:00 / 12:00	Electric Motors and Actuators • ST solutions practical session	G. Forte

Tue 4 May	10:00 / 12:00	Electric Motors and Actuators Driving a three phases brushless motor in field-oriented control	G. Forte
	13:00 / 15:00	Power Management • Power Conversion basic concepts • Power Management systems (DC/DC Converters, Battery Chargers)	M. Di Guardo
Thu 6 May	10:00 / 12:00	Power Management • Power Managements Ics (LDO, Voltage references, SMPS)	M. Di Guardo
	13:00 / 15:00	Ultra-Low-Power Conversion, Energy Harvesting and Wireless Power Transfer (Advanced Systems)	R. La Rosa
Tue 11 May	10:00 / 12:00	Additional module I	
	13:00 / 15:00	Additional module II	
Thu 13 May	10:00 / 12:00	Additional module III	
	13:00 / 15:00	Additional module IV	

Additional Modules to be chosen among:

- Microcontroller programming examples (4hh)
- Energy Autonomous and battery free wireless sensors (2hh)

• PMSM motor characterization and self-tuning algorithm (2hh)

- Microcontroller peripheral synchronization o achieve specific tasks (2hh)
- LoRa (2hh)Artificial Intell
- Artificial Intelligence (2hh)
- Bluetooth (2hh)
- Predictive Maintenance (2hh)