



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 <ul style="list-style-type: none"> Company presentation Introduction to the covered topics Systems presentation <ul style="list-style-type: none"> System general description and main components 	A. Basile	Tue 4 May	10:00 / 12:00	Electric Motors and Actuators <ul style="list-style-type: none"> Driving a three phases brushless motor in field-oriented control 	G. Forte
	13:00 / 15:00	Introduction to Microcontrollers <ul style="list-style-type: none"> General Main Peripherals: GPIO, Timers, ADC, Communication interfaces,... Power Controller 	M.C. Virzi		13:00 / 15:00	Power Management <ul style="list-style-type: none"> Power Conversion basic concepts Power Management systems (DC/DC Converters, Battery Chargers) 	M. Di Guardo
Thu 22 Apr	10:00 / 12:00	Introduction to Microcontrollers <ul style="list-style-type: none"> STM32 family overview STM32 ODE Overview: MCU EcoSystem, Nucleo, X-Nucleo, SW development Tools outline 	M.C. Virzi	Thu 6 May	10:00 / 12:00	Power Management <ul style="list-style-type: none"> Power Managements Ics (LDO, Voltage references, SMPS) 	M. Di Guardo
	13:00 / 15:00	Introduction to Microcontrollers <ul style="list-style-type: none"> Tools: CubeMX, CubeIDE 	M.Branciforte		13:00 / 15:00	Ultra-Low-Power Conversion, Energy Harvesting and Wireless Power Transfer (Advanced Systems)	R. La Rosa
Tue 27 Apr	10:00 / 12:00	Introduction to Microcontrollers <ul style="list-style-type: none"> Practical Examples 	M.Branciforte	Tue 11 May	10:00 / 12:00	Additional module I	
	13:00 / 15:00	MEMS Sensors Overview	A. Basile		13:00 / 15:00	Additional module II	
Thu 29 Apr	10:00 / 12:00	Electric Motors and Actuators <ul style="list-style-type: none"> ST solutions practical session 	G. Forte	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)
- Microcontroller peripheral synchronization o achieve specific tasks (2hh)
- PMSM motor characterization and self-tuning algorithm (2hh)
- LoRa (2hh)
- Artificial Intelligence (2hh)
- Bluetooth (2hh)
- Predictive Maintenance (2hh)