

**Academic Year 2019-20**

## **Master of Science in Control Engineering**

Laurea Magistrale in  
Ingegneria Automatica

DIPARTIMENTO DI INGEGNERIA INFORMATICA  
AUTOMATICA E GESTIONALE ANTONIO RUBERTI

FACOLTÀ DI INGEGNERIA DELL'INFORMAZIONE  
INFORMATICA E STATISTICA

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**SAPIENZA**  
UNIVERSITÀ DI ROMA

Master of Science in Control Engineering

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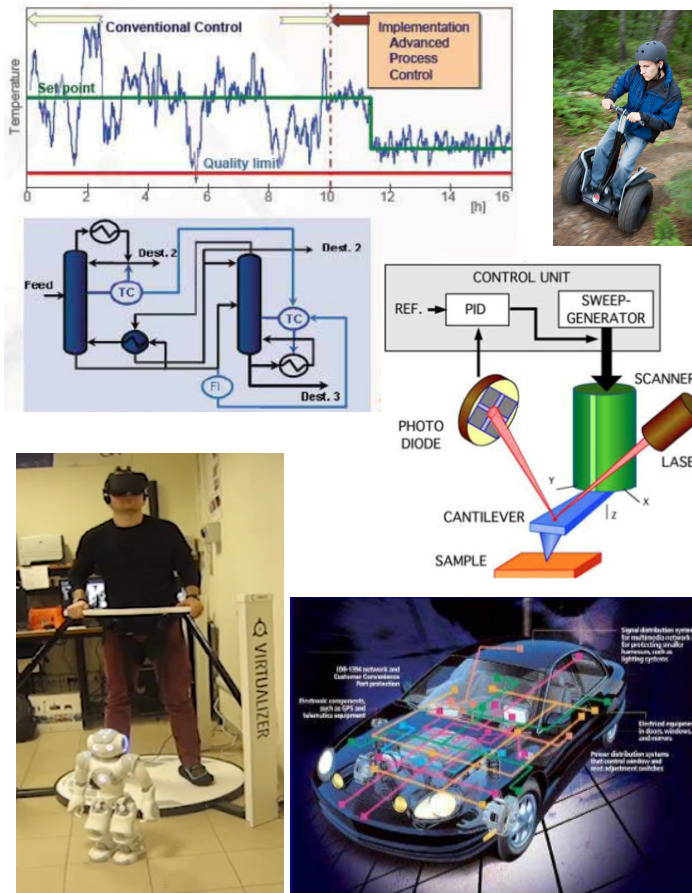
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## PROFESSIONAL PROFILE

A *Control Engineer* is an expert in the design, simulation, implementation, test, and operation of automatic control systems for complex processes belonging to different engineering domains.

The master degree provides education and professional competence on fundamental aspects of *Automatic Control*, such as modeling and identification of dynamic systems; measurements and on-line processing of sensory information; generalized use of feedback for stabilizing the behavior and optimizing the performance of processes; integration of automatic control in system design. These concepts will enable the realization of high-tech automatic control systems.



## CURRICULUM

The two-year *Master of Science in Control Engineering* (infostud code 29933), the only course of study offered by Sapienza in the class of Automation Engineering (LM-25), is characterized by a strong methodological approach and an interdisciplinary nature. Students having a bachelor degree in Control or Computer Engineering are directly admitted. Students with a three-year bachelor in other areas of information engineering, industrial engineering, or applied mathematics can also easily satisfy the admission prerequisites, possibly verified through an interview.

The courses are fully taught in English. The curriculum consists of two core courses in the first year (Nonlinear Systems and Control, System Identification and Optimal Control) for a total of 24 credits, and a number of other characterizing courses that can be selected from two groups, so as to fulfill a total of 54 credits (Autonomous and Mobile Robotics, Computer and Network Security, Control of Autonomous Multi-Agent Systems, Control of Communication and Energy Networks, Control Problems in Robotics, Digital Control Systems, Dynamics of Electrical Machines and Drives, Machine Learning, Multivariable Feedback Control, Neuroengineering, Process Automation, Robotics I, Robotics II, Robust Control, Vehicle System Dynamics). 12 credits are left to the free choice of the student. The final master thesis (30 credits) is performed during the second year either in a department lab or in collaboration with industry, under the supervision of a professor as advisor. Students shall autonomously complete and present the results of a project in which concepts, methods, and tools of system analysis and control design are applied to a scientific or industrial problem.

More information on admission procedures, courses, programs, teachers, personal tutors, exams, transfers from other courses of studies or from other universities, as well as on international initiatives can be found at [www.diag.uniroma1.it/automatica](http://www.diag.uniroma1.it/automatica).



## CAREER OPPORTUNITIES

Automatic control systems play a strategic role in the sustainable development of advanced economies. Sometimes considered a hidden technology, control is in fact everywhere. Its enabling methodologies and functionalities are pervasive and integrated in devices and processes in many different engineering fields.

Career opportunities with a master degree in Control Engineering include:

- design and realization of automatic control systems;
- operation of industrial automation and advanced manufacturing systems (Industry 4.0 and beyond);
- robotics (industrial and service) and robot control;
- guidance and control for aeronautics and aerospace;
- control systems for energy production and distribution networks (smart grids);
- control systems for communication networks;
- mechatronics and embedded automotive systems;
- environmental monitoring and control;
- optimal use of renewable energies;
- bio-medical applications.

Automation and Control at Sapienza ranked **first in Italy** and 16th in the world according to the ARWU Global Ranking of Academic Subject 2018.

Our graduate students will be immersed in an active scientific environment, with collaborations in European research projects. This allows easy access to working positions also at the international level. The department also offers a PhD program in Automatic Control.

