

Dear student,

a new opportunity to improve the chances of your academic success is available.

A first-year master student may face some difficulties in approaching courses requiring a solid basis of system modelling and control theory like Industrial Automation or Computer Engineering. To mitigate those difficulties the Faculty of Engineering provides a preparatory course that summarizes the main knowledge given in the bachelor courses of the university of Pavia.

This course, called “**Fundamentals of automatic control**”, is a good opportunity to align the knowledge of students who received a bachelor from a different university and to refresh the main knowledge of the local student.

Syllabus

Even if the focus is posed on the system analysis, some basic elements of control theory and mathematical fundamental will be provided. The firmer will be given as part of the on-line lesson, while the latter are provided as pre-recorded lessons with no student.

A summary of the main topics is:

- **Math fundamental:** matrix algebra, complex number, use of semi-logarithmic charts, Fourier series
- **System analysis:** basic definitions, system taxonomy, equilibrium, stability.
- **Continuous-time LTI system analysis:** Laplace transform, transfer function, initial and final value theorem, stability criteria, first and second order step response.
- **Simulation software:** introduction to Matlab and Simulink for control purpose.
- **Control problem:** main concepts, block algebra, linear control, bode diagram.

Registration

To register to the course, interested students must register to the course using the Kiro platform (<https://elearning.unipv.it/index.php?lang=en>). The login requires the university credentials.

If you do not have the university credentials sent an email to the instructor Federico Di Palma (federico.dipalma@unipv.it) with the following information:

First Name	Family Name	Student ID
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Assessment

This course is not mandatory, and there will not be any kind of exam. However, at the end of the lesson, the instructor will present a test to the students that can evaluate their degree of knowledge. This test will be forwarded to prof.ssa Ferrara which in charge of the Process control exams.

Classroom and calendar

The course will be broadcasted using a video-conferencing tool and classes will be recorded. Students registered to the course will have access to the video recording on the Kiro platform (<https://elearning.unipv.it/course/view.php?id=539>).

The lesson will be given on Friday afternoon from 4pm to 6 pm and on Thursday from 2pm to 4 pm.

The link to the upcoming lessons, the pre-recorded lessons, the course material, and the recording of the previous lesson will be published on the Kiro platform.