

Theory and Practice of Advanced Control

Lecturers

Emanuele GARONE (Coordinator) and Michel KINNAERT

Course mnemonic

MECA-Y502

ECTS credits

4 credits

Language(s) of instruction

English

Course period

Second term

Campus

Solbosch

Course content

The subject of the course content includes: design by linearization through LQR/LQG, Feedforward, Feedback Linearization, Kalman Filtering, Extended Kalman Filtering, Kalman Filtering with Intermittent observation, Iterative Learning Control.

All the subject object of the course will be applied on a technological case study that will follow the student all along the duration of the course.

Objectives (and/or specific learning outcomes)

The objectives of the course are:

- 1 - To provide the student with the ability to solve a real applied project using different advanced methodological tools
- 2 - To make the student acquainted with the operation of looking for information in the scientific literature
- 3 - To make the student capable of presenting and defending his design choices

Pre-requisites and co-requisites

Required knowledge and skills

Control System Design

Teaching method and learning activities

The teaching is a supervised learning-by-doing, carried out in presence. In every lesson/exercise the students are presented with one or more short (20-30 minutes) theoretical context, and are then requested to apply it immediately to on their case study. During this implementation the professor is always present and discusses with each student the choices made, the difficulties encountered, and opens and promote critical discussions.

Other information

Place(s) of teaching

Solbosch

Contact(s)

Prof. Emanuele Garone: egarone@ulb.ac.be

Evaluation method(s)

Oral examination

Evaluation method(s) (additional information)

The evaluation will be carried out through an oral exam, where an evaluation of both the project carried out all along the course and the theory will be assessed.

Main language(s) of evaluation

English

Programmes

Programmes proposing this course at the Brussels School of Engineering

MA-IREL | Master of science in Electrical Engineering | finalité electronics and information technologies/unit 2 and

MA-IREM | Master of science in Electromechanical Engineering | finalité Professional/unit 2