RÉPUBLIQUE FRANÇAISE
Liberté
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Process control

SCHOOL
Polytech Graduate School of Engineering

CAMPUS
Belle-Beille

LEVEL
Engineering 4th year

OPEN TO EXCHANGE STUDENTS
Yes

SEMESTER
Fall (S1)

- **Degree course:** Graduate School of Engineering - Automation and Computer Engineering
- **Teaching unit:** UE 7.3 Automatique and Automatisation
- **Course language:** English
- **Duration (hours):** 20
- **ECTS:** 2
- **Teacher(s):** Laetitia Perez

- **Assessment:**
  - [x] Continuous assessment
  - [ ] Final exam
- **Teaching methods:**
  - [ ] Lecture course hours
  - [ ] Tutorial course hours
  - [x] Practical work 20 hours
  - [ ] Case study
  - [ ] Project

COURSE DESCRIPTION

Lecture will be divided in several parts in order to investigate process control taking into account numerous industrial requirements. Theoretical aspects will be briefly described in accordance with engineering purposes.

The following processes will be studied:

Situation 1 :
Mining process - Delay system - Electronic device for control purpose - Stability and Routh criterion

Situation 2 : Temperature control in a wind tunnel - Electronic device for control purpose - Bode graph - Controller improvments

Situation 3 : Stabilization of an offshore platform - State representation - Stability - Proportional controller Situation

Situation 4 : Control of a magnetic tape - MIMO system - State representation and feedback -

OBJECTIVES

Industrial applications will be investigated in order to exhibit implementation in realistic configurations. The main goal is to discuss with students about the attractivity of automatic control in industrial context.

PREREQUISITES

Introduction to control theory

SELECTİVE BİBLİOGRAPHY

E. Boillot, Asservissements et régulations continus, ed. Technip, Paris, pp. 207, 2000.
- R. Husson, Problèmes résolus d'automatique, ed. Ellipses, Paris, pp. 255, 2005.
- M. Ksouri, P. Borne, Régulation industrielle, problèmes résolus, ed. Technip, Paris, 1997.
- P. Prouvost, Automatique (contrôle et régulation), ed. Dunod, Paris, pp. 319, 2004.
- F. Rotella, I. Zambettakis, Automatique élémentaire: de l'analyse des systèmes à la régulation, ed. Hermes Lavoisier, Paris, pp. 484, 2008.
- S.M. Savaresi, M. Tanelli, Active braking control systems design for vehicles, ed. Springer, pp. 254, 2010.
- C. Sueur, P. Vanheeghe, P. Borne, Automatique des systèmes continus, ed. Technip, Paris, pp. 178, 1997. -