Basis of mechatronic engineering

SCHOOL
Polytech Graduate School of Engineering

CAMPUS
Belle-Beille

LEVEL
3rd year Bachelor's degree

OPEN TO EXCHANGE STUDENTS
Yes

SEMESTER
Fall (S1)

- **Degree course:** Graduate School of Engineering - Automation and Computer Engineering
- **Teaching unit:** UE 5.2 Automatique and Automatisation
- **Course language:** English
- **Duration (hours):** 40
- **ECTS:** 3
- **Teacher(s):** Laurent Autrique

Assessment:

- [x] Continuous assessment
- [ ] Final exam

Teaching methods:

[x] Lecture course	4	hours	[ ] Case study
[x] Tutorial course	14	hours	[ ] Project
[x] Practical work	22	hours	

COURSE DESCRİPTİON

To master the techniques for data acquisition in an industrial environment
- - The global framework relates to engineering services in instrumentation. Several investigations are proposed: principles of various physical measurements (used in the context of industrial applications), computing tools for the communication and recording of the collected data, implementation of mathematical methods to ensure information analysis.
- - To investigate the main principles of electric motors
- - In an automated system, the need for a servomechanism can be expressed as follows:
- - a set of mechanical quantities
- - associated with a defined production system
- - has to follow a specified behavior - - with specified performance
- - in a given production context.

In this part, we are focused on the servomotor and more specifically on the electric motor and the variable speed drive. -

OBJECTİVES

The aim is to provide students with concepts related on the one hand to industrial instrumentation and on the other hand to electric motors.

PREREQUİSİTES

Basic knowledge on electricity, Sensors, Applied mathematics and signal processing

SELECTİVE BİBLİOGRAPHY

G. Ash, Acquisition de données : du capteur à l'ordinateur, ed. Dunod, 516 pages, 2003.
G. Ash, Les capteurs en instrumentation industrielle, ed. Dunod, 834 pages, 1999.
L. Birglen, Mécatronique, ed. Dunod, 434 pages, 2016
F. Authouart, La métrologie mais c'est très simple, ed. Crisalis, 262 pages, 2011.
F. Baudoin, M. Lavabre, Capteurs : principes et utilisation, ed. Casteilla, 457 pages, 2007.
H. Dang Van Mien, Automatisation des systèmes industriels, Eyrolles, 520 pages, 1999.
P. Dassonvalle, Les capteurs, ed. Dunod, 277 pages, 2005.
J.L. Fanchon, Guide des sciences et technologies industrielles, Nathan, 592 pages, 2001. -
M. Grout, Instrumentation industrielle : spécification et installation des capteurs et des vannes de régulation, ed. Dunod, 526 pages, 2002. -