

Automation



SCHOOL

Polytech Graduate School of Engineering



CAMPUS

Belle-Beille



LEVEL

Engineering 3rd year



OPEN TO EXCHANGE STUDENTS

Yes



SEMESTER

Spring (S2)

- > **Degree course:** Quality, Innovation and Reliability Engineering
- > **Teaching unit:** Engineering Science
- > **Course language:** English
- > **Duration (hours):** 16
- > **ECTS:** 1
- > **Teacher(s):** Nizar Chatti
- > **Assessment:**
 - Continuous assessment
 - Final exam
- > **Teaching methods:**

<input type="checkbox"/> Lecture course	hours	<input type="checkbox"/> Case study
<input checked="" type="checkbox"/> Tutorial course	4 hours	<input type="checkbox"/> Project
<input checked="" type="checkbox"/> Practical work	12 hours	

COURSE DESCRIPTION

Foundations of Programmable Logic controllers
Sequential digital systems
Sequential function chart (SFC) language
- Definition, structure and constitutive elements
- Applications

LADDER (LD) programming
- Basic instructions
- Comparison instructions
- Mathematical instructions
- Data management instructions
- Instructions for subprograms
- Counting instructions
- Transforming SFC into LD program
- Applications

LIST programming
- Basic instructions
- Comparison instructions
- Mathematical instructions
- Data management instructions
- Instructions for subprograms
- Counting instructions
- Transforming SFC into LIST program

OBJECTIVES

This course aims to provide basic principles of programmable logic controllers (PLC) to student who will be able to understand the architecture of a PLC, to configure it and to program sequential digital systems using different programming languages (SFC, LADDER, LIST). Thus, students will be able to interact with different services of industry especially the industrial automation service.

PREREQUISITES

None

SELECTIVE BIBLIOGRAPHY

- Automates programmables industriels / William Bolton , traduction de Hervé Soulard, 2015.
- Langages de programmation pour systèmes automatisés : norme CEI 61131-3, Nicolas
 - Jouvray, Techniques de l'ingénieur, 2008.
 - Le GRAFCET (Texte imprimé) : conception, implantation dans les automates programmables
 - industriels, Simon Moreno, 2009