Industrial Control

General Information

Number of ECTS Credits

3

Module code

TSM_IndContr

Valid for academic year

2025-26

Last modification

2023-08-03

Coordinator of the module

Emanuele Carpanzano (SUPSI, emanuele.carpanzano@supsi.ch)

Explanations regarding the language definitions for each location:

- Instruction is given in the language defined below for each location/each time the module is held.
- Documentation is available in the languages defined below. Where documents are in several languages, the percentage distribution is shown (100% = all the documentation).
- The examination is available 100% in the languages shown for each location/each time it is held.

	Lausanne		**Lugano**	**Zurich**	
Instruction			**X** E 100%		
Documentation			**X** E 100%		
Examination			**X** E 100%		

Module Category

TSM Technical scientific module

Lessons

2 lecture periods and 1 tutorial period per week

Entry level competences

Prerequisites, previous knowledge

n/a

Brief course description of module objectives and content

The Machine and Production Operations Control is the core of the module, with focus on continuous time, motion and discrete event control of industrial systems. Practical laboratory activities are developed for both CNC (Computer Numerical Control) and PLC (Programmable Logic Control) programming.

Aims, content, methods

Learning objectives and acquired competencies

- to understand tasks and generic architecture of a machine and production operations control system
- to learn which are the functions of a generic driver, CNC and PLC necessary to control manufacturing plants
- to learn configuring and programming PLC and CNC systems through standard IEC and ISO languages
- to develop practical exercises on industrial drivers, PLC and CNC targets

Contents of module with emphasis on teaching content

The PLC, CNC and drivers roles and functions in production systems. The architecture of a PLC and a CNC. Configuration and programming of PLC and CNC systems. Exercises on part program (CNC) and logic control (PLC) solutions development.

Teaching and learning methods

Frontal theoretical lessons, exercises and practical activities in the minifactory laboratory.

Literature

Course notes provided by the lecturer.

Assessment

Additional performance assessment during the semester

The module does not contain an additional performance assessment during the semester

Basic principle for exams

As a rule, all the standard final exams for modules and also all resit exams are to be in written form

Standard final exam for a module and written resit exam

Kind of exam

written

Duration of exam

120 minutes

Permissible aids

No aids permitted

Exception: In case of an electronic Moodle exam, adjustments to the permissible aids may occur. Lecturers will announce the final permissible aids prior to the exam session.

Special case: Resit exam as oral exam

Kind of exam

oral

Duration of exam

30 minutes

Permissible aids

No aids permitted