

**Module Description, available in: EN**

## *Industrial Control*

### General Information

**Number of ECTS Credits**

3

**Module code**

TSM\_IndContr

**Valid for academic year**

2024-25

**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		
<b>Instruction</b>				X E 100%			
<b>Documentation</b>				X E 100%			
<b>Examination</b>				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

### Certification requirements

Module does not use certification requirements

### 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

### Special case: Resit exam as oral exam

Kind of exam

oral

Duration of exam

30 minutes

Permissible aids

No aids permitted