Module Description, available in: EN

Smart systems for buildings

General Information

Number of ECTS Credits

3

Module code

TSM_SmartSys

Valid for academic year

2026-27

Last modification

2025-12-17

Coordinator of the module

Olivier Steiger (HSLU, olivier.steiger@hslu.ch)

Explanations regarding the language definitions for each location:

- Instruction is given in the language specified for each location and module execution.
- Documentation is available in the language(s) listed for each location and module execution. If the documentation is in multiple languages, the percentage distributed is indicated (100% = all documentation provided).
- The examination, including both questions and answers, is provided entirely (100%) in the language(s) specified for each location and module execution. The exams are on-site.

	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

Basic knowledge of building technologies is desirable, but not mandatory

Brief course description of module objectives and content

This module aims to familiarise students with smart systems that are already, or will soon be, present in buildings. These include building automation and control systems (BACS), smart homes, IoT solutions, energy management and building security systems. Students will learn about the purpose, functionality and applications of these systems. They will also cover the necessary fundamentals such as components and system architecture, communication technologies and protocols.

Aims, content, methods

Learning objectives and competencies to be acquired

Learning objectives. The students should

- Understand the purpose, functionality and applications of smart systems for building
- Learn the necessary fundamentals. E.g. components and system architecture, communication technologies, protocols

Competences acquired. Students will be able to

- Understand, select and design smart systems for buildings

Module content with weighting of different components

1. **Introduction** History of smart buildings, definition and benefits, applications
2. **Fundamentals** Automation of buildings, communication technologies, protocols (wired and wireless)
3. **Applications**. Building automation and control systems BACS, smart home, internet of things IoT, energy management systems EMS, building security
4. **Future trends**
5. **Lab work**

Teaching and learning methods

- Three lecture periods per week, mixed with practical sessions and exercises.
- Teaching: Frontal teaching and storytelling. Discussion of practical examples. Guided study using lecture notes and textbooks.
- Exercises: Solving practical problems under the guidance of tutors (coaching).

Literature

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 standard final exams are conducted in written form. For resit exams, lecturers will communicate the exam format (written/oral) together with the exam schedule.

Standard final exam for a module and written resit exam

Kind of exam

Written exam

Duration of exam

120 minutes

Permissible aids

Aids permitted as specified below:

Permissible electronic aids

No electronic aids are permitted

Other permissible aids

Closed book: You may only use one two-sided A4 sheet containing a summary of the course material.

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 exam

Duration of exam

30 minutes

Permissible aids

Aids permitted as specified below:

Permissible electronic aids

No permissible electronic aids.

Other permissible aids

Closed book: You may only use one two-sided A4 sheet containing a summary of the course material.