

Module Description, available in: EN*Smart systems for building***General Information****Number of ECTS Credits**

3

Module code

TSM_SmartSys

Valid for academic year

2021-2022

Last modification

2021-01-04

Coordinator of the module

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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.

	Berne	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 about building technology

Brief course description of module objectives and content

In this module, students shall become acquainted with smart systems that are already or soon to be found in buildings. Those include Building Automation and Control Systems (BACS), Smart Home, IoT-solutions, Energy Management Systems and building security. The students will get to know the purpose, functionality and applications of these systems. In addition, they will perform hands-on experiments with some of them. Also, necessary fundamentals will be addressed including system components, communication technologies and protocols.

Aims, content, methods

Learning objectives and acquired competencies

- Become acquainted with smart systems for buildings. Notably Building Automation and Control Systems (BACS), Smart Home, IoT-solutions, Energy Management Systems (EMS) and building security
- Understand the purpose, functionality and applications of these systems
- Acquire the necessary fundamentals. I.e. system components, communication systems and protocols

Acquired competencies. The students shall be able to:

- Select and understand smart systems for buildings
- Devise smart systems for a given building

Contents of module with emphasis on teaching content

1. **Introduction:** History of (smart) buildings, definition and structure of a smart building system, applications overview
2. **Fundamentals.** System components, communication technologies (wired and wireless), protocols
3. **Applications.** Building Automation and Control Systems, Smart Home, Internet of Things, Energy Management Systems, building security
4. _____

Teaching and learning methods

- 3 lecture periods per week, with blended exercise sessions and hands-on experiments (case study)
- Teaching: Frontal teaching and storytelling. Discussion of practical examples. Guided learning using lecture notes and textbooks
- Exercises: Solving practical problems under the guidance of the tutors (*coaching*)

Literature

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

Aids permitted as specified below:

Permissible electronic aids

Other permissible aids

Special case: Resit exam as oral exam

Kind of exam

oral

Duration of exam

30 minutes

Permissible aids

Aids permitted as specified below:

Permissible electronic aids

Other permissible aids
