Module Description, available in: EN

Digital health systems

General Information

Number of ECTS Credits

3

Module code

TSM_DigHealth

Valid for academic year

2026-27

Last modification

2022-10-21

Coordinator of the module

Thomas Bürkle (BFH, thomas.buerkle@bfh.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

The following will be helpful to follow the course:

- knowledge about sensor-based - structured data acquisition
- knowledge of database concepts and information systems

Brief course description of module objectives and content

This course provides an in-depth overview of data management in digital healthcare.

Special features and challenges of medical documentation will be discussed including underlying ontologies, classifications and scoring systems. Particular emphasis will be placed on a deeper understanding of different dimensions of interoperability. This knowledge will be used to address exemplary specific tasks in group based case studies. Challenges for software development in the context of the Medical Device Regulation (“MDR”)

are covered.

The particular challenges of digital transformation in healthcare are discussed. In particular, the inclusion of empowered patients in future will be discussed and demonstrated, as well as the potential of the merging of lifestyle data, vital data and medical documentation. The topic of data reuse from the different medical applications combined with security issues within the emerging data science centers is also a subject of this module.

Aims, content, methods

Learning objectives and competencies to be acquired

The aim of this lecture is to understand,

- how Data are collected in medicine,
- how these data are organized in a structured and interoperable way,
- the importance of information systems in this context,
- the role of these systems as a basis for digital transformation in the healthcare sector,
- how information systems can be linked with eHealth, mHealth (“mobile Health”), pHealth (“personalized Health”)
- how future active assisted living can be supported
- and the impact of MDR on the professionalization of medical software and apps.

Module content with weighting of different components

- Medical & Health Data Documentation
- Medical Ontologies and Classification
- Hospital & Health Care Information Management Systems
- Dimensions of Interoperability in Health Care Systems
- mHealth ecosystem and participatory design
- case study presentations
- UX design
- Home monitoring
- Using predictive analytics to improve healthcare outcomes
- Digital Health system examples

Teaching and learning methods

Lectures and practical work on computer. Partial flipped classroom teaching with clinical cases which are to be worked up and presented in groups with tasks regarding digital handling of such cases. Site visit of a hospital.

Literature

Slides and lecture notes will be available in addition to recommended book chapters.

Assessment

Additional performance assessment during the semester

The module contains additional performance assessment(s) during the semester. The achieved mark of the additional performance assessment(s) applies to both the regular and the resit exam.

Description of additional performance assessment during the semester

- performance assessment during semester 30%
- written final exam 70%

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

examination on laptop, Moodle

Other permissible aids

No further 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 exam

Duration of exam

30 minutes

Permissible aids

No aids permitted