Course Title: Health Systems and Data Interoperability
Coordinating Unit: Faculty of Digital Engineering – Digital Health and Personalized Medicine
Semester: 1 (2018/2019) **Credits: 3**
Lecturer: Thun (BIH)

Interoperability describes the extent to which systems and devices can exchange data, and interpret that shared data. For two systems to be interoperable, they must be able to exchange data and subsequently present that data such that it can be understood by a user.

This module defines and explains the role of semantic interoperability in the development of an EHR and derived applications as well as regulatory requirements, registries, notification processes and ePharma. It analyzes predominant standardization in the healthcare field such as ISO IDMP, HL7, SNOMED CT, LOINC and IHE and examines the challenges to the development and implementation of interoperability standards in healthcare.

Health Systems and Data Interoperability gives an understanding of basic and advanced principles in healthcare system interoperability and infrastructure as well as architectural, business, organizational, juristical, ethical aspects and operational models required to implement and manage a health information exchange. Participants will gain practical experience in the exchange of clinical data in a cloud-based environment.

Knowledge:
Students know the important IT systems in the healthcare sector. They recognize why interaction between various Stakeholders and their software systems is necessary for Digital Health and who are responsible organizations for Interoperability Standards. Students will be familiar with the responsibilities of healthcare IT departments and key medical applications and their management.

Understanding:
Students understand requirements of healthcare IT system interfaces and how IT supports collaborations. They know the essential principles of IT management in this field by understanding how to design and manage a project to introduce Digital Health and Integrated Pathway.

Applying:
Students are able to correctly estimate the need for IT and interfaces. They can plan and scale IT in healthcare. Furthermore, students apply methods of IT management and of process management.

I. Basic and advanced principles in healthcare system interoperability
II. Standard Developing Organizations
III. International and national Data exchange standards
IV. Semantic Standards and clinical Use Cases
V. Fair information practices
VI. Projects and Sustainability

Applicable Module: Mandatory Module 'Software Architecture in Digital Health'