Module Description, available in: EN

Biology, physiology and anatomy for engineers

General Information

Number of ECTS Credits

3

Module code

FTP_BioEng

Valid for academic year

2025-26

Last modification

2024-10-14

Coordinator of the module

Igor Stefanini (SUPSI, igor.stefanini@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		
Instruction				**X** E 100%			
Documentation				**X** E 100%			
Examination				**X** E 100%			

Module Category

FTP Fundamental theoretical principles

Lessons

2 lecture periods and 1 tutorial period per week

Entry level competences

Prerequisites, previous knowledge

No previous knowledge is required

Brief course description of module objectives and content

Medical engineering is the intersection of many different disciplines. From engineering in its most varied forms, mechanics, electronics, computer science, management, to disciplines related to medicine: biology, anatomy, and physiology. In order to understand and put into practice the notions that the student will learn in this fascinating path, the same can not ignore the acquisition of basic knowledge about the human body. Thanks to this module the student will learn the basics of life as we know it, as well as the structure and functioning of the major systems present in the human body.

Aims, content, methods

Learning objectives and competencies to be acquired

The student is faced with the most important aspect of human biology, anatomy, and physiology. She/he learns the basics of:

- prokaryotic and eukaryotic cell structure and function
- the most important physiological systems
- the anatomy systems
- human pathology

Module content with weighting of different components

Basics of prokaryotic and eukaryotic cell biology including eukaryotic stem cell biology and cell cultivation techniques.

Basics of anatomy; skeleton, locomotory system, cardio-vascular system, respiratory system, nervous system (CNS & PNS) and the sensory system (eye, ear, olfactory system, vestibular system, proprioception, and touch)

Basics of physiology: introduction of the physiology of the nervous system (CNS and PNS), the cardio-vascular system, the locomotory apparatus as well as the hormone system

Basics of human pathology

Teaching and learning methods

Lectures, hands on exercise

Literature

Slides, course material and books chapters

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

No 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