Module Name: **Medicine**			
Module Responsibility	Prof. Dr. rer. nat. Dagmar Willkomm		
Department, Facility	THL, Applied Natural Sciences		
Lecturers	Prof. Dr. rer. nat. Dagmar Willkomm (Microbiology and Hygiene) Prof. Dr. med. Dipl.-Ing. (FH) Hans-Jürgen Grein (Anatomy and Physiology)		
Course of Studies	Medical Microtechnology, Master		
Compulsory/elective	Compulsory	**ECTS Credit Points**	8
Semester of Studies	1	**Semester Hours per Week**	8
Length (semesters)	1	**Workload (hours)**	240
Frequency	WiSe	**Presence Hours**	120
Teaching Language	English	**Self-Study Hours**	120
Consideration of Gender and Diversity Issues	☒ Use of gender-neutral language (THL standard)		
	☐ Target group specific adjustment of didactic methods		
	☐ Making subject diversity visible (female researchers, cultures etc.)		
Applicability	Biomedical Engineering, Medical Microtechnology		
Remarks	None		
Course 1: Anatomy and Physiology			
Course Number		**Short Name**	
Course Type	Lecture	**Form of Learning**	Presence
Lecturer	Grein		
Course Number		**Short Name**	
Course Type	Lecture	**Form of Learning**	Presence
Mandatory Attendance	☒	**ECTS Credit Points**	4
Participation Limit	None	**Semester Hours per Week**	4

Group Size (practical training, exercises, …)	n. a.	**Workload (hours)**	120
Teaching Language	English	**Presence Hours**	60
Study Achievements („Studienleistung“, SL)	Test	**Self-Study Hours**	60
SL Length (minutes)	90	**SL Grading System**	Pass
Exam Type	Written Exam	**Exam Language**	English
Exam Length (minutes)	90	**Exam Grading System**	Pass
Learning Outcomes	The students shall acquire a basic understanding of all tissues and organs structures and functions. They should get to know the commonly used terms, the basic principles of medical thinking, diagnostics and therapy. They shall be able to relate to the single tissues and organs productivities and to under what circumstances these can be limited. In addition, they shall learn about the principles to support and replace damaged tissues and organs. The students also acquire knowledge of the physiological regulation of the most important functions within the human body as well as the application of current technical diagnostic and therapy methods in clinical medicine.		
Participation Prerequisites	None		
Contents	• Basic knowledge in anatomy, cytology and histology • Overview on the main organ systems: Skeletal and muscle systems, respiratory tract, gastrointestinal tract, urogenital tract, central and peripheral nervous systems, blood and defense system • Examples are given concerning wide-spread diseases like infections, diabetes, malfunctions of heart, lungs and kidney and mechanical injuries: 1. The cardiovascular system a. Heart b. Circulation system 2. General neurophysiology and sensory system a. General neurophysiology b. Sensory system 3. Brain function and regulation of hormonal feedback control systems a. Brain function b. Hormonal feedback control systems 4. Motor system 5. Respiration 6. Kidneys 7. Gastrointestinal tract and digestion		

	8. Energy metabolism and nutrition		
Literature	• Waugh, A. Grant, *„Anatomy and Physiology in Health and Illness"*, Elsevier, 2018. • R. Drake, A. Wayne Vogl, A. Mitchell, *„Gray's Anatomy for students"*, Churchill Livingstone, 2009.		
Remarks	None		
Course 2: Microbiology and Hygiene			
Course Number		**Short Name**	
Course Type	Lecture	**Form of Learning**	Presence
Lecturer	Willkomm		
Mandatory Attendance	☒	**ECTS Credit Points**	4
Participation Limit	None	**Semester Hours per Week**	4
Group Size (practical training, exercises, …)	25	**Workload (hours)**	120
Teaching Language	English	**Presence Hours**	60
Study Achievements („Studienleistung", SL)	None	**Self-Study Hours**	60
SL Length (minutes)	n. a.	**SL Grading System**	n. a.
Exam Type	Written Exam	**Exam Language**	English
Exam Length (minutes)	90	**Exam Grading System**	One-third Grades
Learning Outcomes	The students get acquainted with basic knowledge of microbiology and hygiene. A major focus is on medical microbiology and infections, which can occur when using medical technology products. In addition, students learn basics about sampling techniques, about the hygienically correct handling of potentially contaminated materials and about the avoidance of contamination by technical staff.		
Participation Prerequisites	None		
Contents	Basic knowledge of bacteriology, mycology, virology and immunology with an insight into diagnostics in medical microbiology and test systems used. A further focus is on transmission of disease, especially with regard to pathogens in hospitalized patients. In this context, also hygiene of air and		

	water as well as methods of disinfection and sterilization are covered and experimentally explored.
Literature	Goering et al., *„Mims' Medical Microbiology"*, 5th ed. Elsevier, 2012.
Remarks	None