

Smart Medical Systems					
Module Code	Workload 180 hrs.	Credits 6	Semester 2	Frequency of Module Only summer semester	Duration 1 Semester
1	Module Components a) Telemetrie, Energie- und Datenmanagement b) Praktikum Telemedizin	Teaching Language a) Deutsch b) Deutsch	Contact Hours a) 22,5 hrs. b) 22,5 hrs.	Self Study a) 67,5 hrs. b) 67,5 hrs.	Class Size a) 24 b) 24
2	Learning Outcomes After successful participation in the module the students should be able to Knowledge (1) ... tell about important technological parameters of a telemetric interface Comprehension (2) ... identify important technological influencing variables of a telemetric data interface Application (3) ... evaluate, correlate and categorize telemetric concepts in context of active intelligent implants				
3	Individual Component Content a) Individual component content <ul style="list-style-type: none"> - Transmission technology, Transmission behavior (uni-/bidirectional), weight, size, misalignment, data rate, real time behaviour, time synchronizing, power demand, efficiency factor, power consumption (primary, secondary), transmission path (geometry, transmission medium). - Penetration depth / absorbance spectra of electrical, magnetic and electromagnetic fields, the latter down to infrared, electromagnetic noise fields, encapsulation, housing - Biocompatibility, maximum field-strength, temperatures and specific thermal conductance of tissue - Data management, medical use of data 				
4	Teaching Methods a) Lecture b) Practical / Lab				
5	Prerequisites none				

6	Methods of Assessment a) Graded Assessment 1K (Written Exam) (3 LP) b) Non Graded Assessment 1sbL (Laboratory) (3 LP insgesamt für alle Teilprüfungsleistung dieser Lehrveranstaltung) b) Non Graded Assessment 1sbB (Report)
7	Applicability of Module Smart Systems M.Sc. (SMA)
8	Person Responsible for Module Steffen Mauch (Module Responsible)
9	Reading List (Core Texts and Recommended Texts) a) Gärtner, Armin: Medizintechnik und Informationstechnologien., 2006 Zhou, David: Implantable Neural Protheses, 1. Auflage, New York, NY, Springer Science + Business Media, 2010 Vorlesungsskript b) Gross F., Mengden T., Middeke M., Smetak N.: Praktische Telemedizin in Kardiologie und Hypertensiologie, 1. Auflage, Thieme 2009