

Course Unit Descriptor

Study Programme: Biomedical Engineering			
Course Unit Title: Medical Electronics			
Course Unit Code: BM117A			
Name of Lecturer(s): Goran Stojanović			
Type and Level of Studies: Bachelor level			
Course Status (compulsory/elective): compulsory			
Semester (winter/summer): winter			
Language of instruction: english			
Mode of course unit delivery (face-to-face/distance learning): face-to-face			
Number of ECTS Allocated: 5			
Prerequisites: none			
Course Aims: Acquiring theoretical and practical knowledge in the field of electronic medical devices and application of electronics and sensors in modern medical devices and instruments.			
Learning Outcomes: - an ability to design of simple ECG, EMG, EEG devices, pulseoximeter as well as their connection with computer - an ability to realize hardware part of above mentioned electronic devices - an ability to understand operating principles and the main parts of medical devices for diagnostic purposes such as roothgen, CT scanner, magnetic resonance imaging - an ability to understand advantages of application neural impulse actuators			
Syllabus: Design and manufacturing of electronic devices for application in medicine. ECG. EMG. EEG. Pulseoximeter. Pacemaker. Device for measuring blood sugar. Digital stethoscope. Device for measuring body temperature. Construction and operating regime of Roentgen. PET scanner. CT scanner. Magnetic resonance imaging. Application of electronics in dentists devices. Application of microelectronics and MEMS in electronic medical devices. Application of nanotechnology for drug delivery and tumor tissue destroying. Neural impulse actuator - demonstration of practical work.			
Required Reading: Relevant literature in English TBD			
Weekly Contact Hours: 4		Lectures: 2	Practical work: 2
Teaching Methods: Lecture. Auditory exercises. Laboratory exercises. Consultations			
Knowledge Assessment (maximum of 100 points): 100			
Pre-exam obligations	points	Final exam	points
Laboratory exercise	30	Final Exam part 1	35
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The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			

