

Level: bachelor				
Course title: Physical Foundation of Electrodiagnostics and Electrotherapy				
Status: obligatory				
ECTS: 6				
Requirements: Physics of the human body				
Learning objectives To introduce students to the physical foundation of electrodiagnostic and electrotherapy.				
Learning outcomes After completion of course student should have developed: - General skills: Understanding the nature and methods of physical research and application of physics in medicine; Ability to work in an interdisciplinary team of physicists and doctors in understanding and resolving problems related to implementation and electrodiagnostics and electrotherapy in medicine; ability to search for the relevant literature and other forms of information, capability of presenting the research results; Subject-specific skills: Good knowledge and understanding of physics in the field of electromyography, electrocardiography, electroencephalography, and other diagnostic methods include detection of electrical signals originating from the human body; good knowledge and understanding of physics in the field of electrotherapy or the application of electrical currents and electrical signals in the human body.				
Syllabus <i>Theoretical instruction</i> Electrodiagnostics: registration of electrical signals, electromyogram, electrocardiogram, electroencephalogram, electroretinogram, electrocochleogram. Electrotherapy: Direct current (DC), special forms of application of galvanic current; Direct pulse current (Neofarad, DDS, exponential current, modulated current), application of DC current in certain pathological conditions. Alternating current (AC): Low frequency current; middle frequency current (IFS, TENS, sinusoidal modulated current); high frequency current (longwave diathermy, KTD, ultrashortwave diathermy, microwave diathermy) <i>Practical instruction</i> Practical training takes place at the respective clinics of the Medical Faculty (especially physiotherapy), where students can meet the practical application of diagnostic and therapeutic methods that use electrical signals and electrical power. <i>Seminar work</i> Detailed treatment of the problems selected from some of the above areas and their presentations.				
Weekly teaching load				Other:
Lectures: 45	Exercises: 15	Other forms of teaching:	Student research: 15	