



Subject card

Subject name and code	Physical rehabilitation engineering, PG_00039379						
Field of study	Medical and Mechanical Engineering, Medical and Mechanical Engineering						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2022/2023		
Education level	first-cycle studies	Subject group			Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish		
Semester of study	5	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		Dominika Szalewska				
	Teachers		Dominika Szalewska				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	30		3.0		42.0	75
Subject objectives	Established knowledge of basic issues of modern motor rehabilitation.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_U11		The student can assess routine procedures used to solve problems of motor rehabilitation and can choose the best of them.		[SU4] Assessment of ability to use methods and tools		
	K6_W12		The student knows the mechanisms of action and indications for basic devices used in motor rehabilitation.		[SW1] Assessment of factual knowledge		
	K6_U10		The student can model basic issues of motor rehabilitation engineering.		[SU2] Assessment of ability to analyse information		
Subject contents	K6_W13		The student has basic knowledge in the field of motor rehabilitation engineering.		[SW1] Assessment of factual knowledge		
	LECTURE Definition, indications and contraindications to physical rehabilitation. Medical devices used in rehabilitation. Methods of measuring exercise capacity in healthy people and patients. Adaptation to physical exercise in patients with cardiovascular diseases. Exercise testing on bicycle ergometer and treadmill. The use of spirometry and ergospirometry in rehabilitation. Kinesytherapy in internal diseases. The role of education in rehabilitation. Individual character of rehabilitation of patients with cardiac pacemaker and implantable cardioverter-defibrillator. Elements of sports cardiology. Rehabilitation in patients with respiratory system diseases, in patients with diabetes and treated with haemodialysis. Exercise training in patients after myocardial infarction, after cardiac surgery and with heart failure. Telemedicine in rehabilitation. LABORATORY Performing exercise testing on bicycle ergometer and treadmill. Monitoring and evaluation of rehabilitation effectiveness: echocardiography, electrocardiography (ECG), 24-hours measurements of ECG and blood pressure. Analysis of rehabilitation methods in patients with different diseases. Familiarization of systems for telerehabilitation Exercises on the platform for evaluation of the body balance and podometer.						
	1. Basics of anatomy 2. Basics of physiology 3. Basics of internal medicine 4. Basics of surgery 5. Basics of orthopaedics 6. Basics of cardiology						
	Prerequisites and co-requisites						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	term credit		60.0%		100.0%		
Recommended reading	Basic literature		1.Oxford Handbook of Rehabilitation Medicine / Barnes M. P., Ward A. B.; Oxford University Press. 2.Physical Medicine and Rehabilitation / Braddom R. L.; Saunders / Elsevier				

	Supplementary literature	1. Physical Medicine & Rehabilitation Review / Kaplan R. [ed. by]; McGraw-Hill. 2. Physical Medicine and Rehabilitation Secrets / O'Young B. J. [ed. by], Young M. A., Stiens S. A.; Mosby
	eResources addresses	
Example issues/ example questions/ tasks being completed	1. What is locomat used for? 2. What are the features of Polish model of rehabilitation? 3. What is ergospirometry?	
Work placement	Not applicable	