GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Physical rehabilitation engineering, PG_00039379		
Field of study	Medical and Mechanical Engineering, Mechanical and Medical 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
K6_W13	The student has basic knowledge in the field of motor rehabilitation engineering.	[SW1] Assessment of factual knowledge

Subject contents

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 treadmil. 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-defibrylator. Elements of sports cardiology. Rehabilitation in patients with respiratory system diseases, in patints with diabetes and treated with haemodialysis. Exercise training in patints after myocardial infarction, after cardiosurgery and with heart failure. Telemedicine in rehabilitation. LABORATORY Performing exercise testing on bicycle ergometer and treadmil. 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.

Prerequisites and co-requisites

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

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	Adresy na platformie eNauczanie:
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	