GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Engineering problems in surgery and orthopedics, PG_00064137		
Field of study	Mechanical and Medical Engineering		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2027/2028
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study 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	Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	Włodzimierz Żychliński	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	15.0	0.0	0.0	45

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	45	1.0	29.0	75

Subject objectives

Knowledge of the basics of orthopedics and traumatology in terms of human biomechanics.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_K02] is aware of importance of professional dealing and to fulfill ethics obligations, he/she understands other (nontechnical) abilities of mechanical engineering professional, their influence on the society and security of environment, he/she is aware of importance of social cooperation	He ethically approaches the patient and his hardships of life in the personal and social aspect	[SK2] Assessment of progress of work [SK3] Assessment of ability to organize work
[K6_W01] has knowledge in the field of natural sciences, including mathematics, contemporary physics, chemistry, and human anatomy with physiology	Appropriately assesses the need for first aid, immobilization and assisted locomotion.	[SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects
[K6_U08] is able to assess the human body physic and functioning of the body organs and is able to use medical knowledge to solve mechanical-medical problems in the scope of the study	Correctly evaluates the biomechanics of a healthy and sick person	[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject

Subject contents

Course content – lecture
Issues of basic orthopedic diseases, multi-organ trauma, history of orthopedics, principles of operation of the operating block and sterilization room

Course content – laboratory
Issues of basic orthopedic diseases, multi-organ trauma, history of orthopedics, principles of operation of the operating block and sterilization room

Prerequisites and co-requisites

Knowledge of the anatomy of the musculoskeletal system and its biomechanics

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Test	51.0%	90.0%
Activity	100.0%	10.0%

Recommended reading	Basic literature	Chirurgia Narządu Ruchu Tylman Campbells Operative Orthopaedics Choroby układu ruchu Anderson Reumootropedia Sell
	Supplementary literature	Tom 2. Anatomii Człowieka Bochenek Atlas Anatomii Netter Anatomia i Fizjologia Człowieka Pituch
	eResources addresses	
Example issues/ example questions/ tasks being completed	History of orthopedicsAnatomy of limbs, spine,Multiple organ traumaOsteoarthritisConstruction and use of an orthopedic operating tableOperating block, sterilization room	
Practical activites within the subject	Not applicable	

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