GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00064558		
Field of study	Mechanical and Medical Engineering, Mechatronics		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2026/2027
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish
Semester of study	7	ECTS credits	1.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Heating Ventilation Air Conditioning and Refrigeration -> Institute of Energy -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Michał Klugmann	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	0.0	0.0	15

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	15	0.0	0.0	15

Subject objectives

The aim of the course is to comprehensively familiarize students with the techniques of recording and reproducing image and sound, starting from the history and creation of these techniques, ending with the latest tools. This will allow you to understand visualization measurement methods, their nuances and sources of errors. Particular emphasis will be placed on how computers work in image generation and analysis and on how a digital image is constructed.

Learning outcomes

Course outcome	Subject outcome	Method of verification

Subject contents

Course content – lecture
1. A historical outline of sound recording techniques, photography, cinematography and television in the analog era.

2. A shortened history of computers in terms of the ability to generate images and sounds.

3. Principle of operation of a digital computer, method of recording and generating digital sound, construction of a digital image. Discussion from a historical perspective - how graphic modes and formats were developed, etc.

4. Digital techniques for recording, processing and interpreting sound and image: static photography, video, 3D, 360 degrees, drones. related techniques: high-speed photos, thermal imaging, liquid crystal thermography.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Essay	56.0%	100.0%

Recommended reading

Basic literature	No English literature.
Supplementary literature	Archival magazines about computers and audio-video techniques.
eResources addresses	

Example issues/ example questions/ tasks being completed	Comparison of digital and analog signal transmission. Issues of digitization of sound and image. Lossless and lossy image and sound recording formats - what are their origins and features? Light sources and their features.
Practical activites within the subject	Not applicable

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