



Subject card

Subject name and code	History of Electronics and Photographic Technolog, PG_00071148						
Field of study	Technical Physics, Mathematics, Nanotechnology, Nanotechnology						
Date of commencement of studies	October 2024	Academic year of realisation of subject				2025/2026	
Education level	second-cycle studies	Subject group				Optional subject group	
Mode of study	Full-time studies	Mode of delivery				at the university	
Year of study	2	Language of instruction				Polish	
Semester of study	4	ECTS credits				1.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Division of Electrochemistry and Surface Physical Chemistry -> Institute of Nanotechnology and Materials Engineering -> Faculty of Applied Physics and Mathematics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Ryszard Barczyński				
	Teachers		dr hab. inż. Ryszard Barczyński				
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						
	eNauczanie source addresses: Moodle ID: 5467 Historia elektroniki i techniki fotograficznej https://enauczanie.pg.edu.pl/2025/course/view.php?id=5467						
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	2.0	8.0	25		
Subject objectives	The aim of the course is to demonstrate the connections between social needs and technological development. Upon completion of the course, students should be aware of the bidirectional interaction between social development and technological development: how social needs influence inventions and technologies, and how technological development influences the formation of societies.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K101] acknowledges the importance of knowledge related to the field of study in solving cognitive and practical problems, critically assessing the information obtained		The student is aware of the importance of well-thought-out actions implemented in a manner that is not only planned but also creative. The student is aware of the application of acquired knowledge and its importance for the further development of science.		[SK1] Assessment of group work skills [SK2] Assessment of progress of work [SK3] Assessment of ability to organize work		
	[K7_U101] is able to formulate complex research problems and adopts appropriate methods, obtaining innovative solutions, cooperating with other people, both as a leader and a team member		The student understands the history of fundamental fields of technology and its impact on technological development. They are aware of the social, legal, and economic values of history and are able to communicate this knowledge to others and defend their ideas.		[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject		
	[K7_W101] is able to make an in-depth identification of key objects and phenomena related to the field of study, as well as theories that describe them and applicable analytical and design methods		The student analyzes the relationship between society and science. He/she uses printed and electronic literature, selects appropriate source information, and correctly references literature.		[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		

Subject contents	<p>Course content – lecture</p> <p>Electronics - How wire was disposed of, or from semaphore telegraphy to cell phones.</p> <ol style="list-style-type: none"> 1. The prehistory of radio technology: technological longings, radio technology before electronics. 2. Electron tubes: diode and triode inventions and operating principles; the first applications of electron tubes; the development of radio technology (we'll meet in court) and television. 3. The beginnings of semiconductor technology: semiconductors before Bell Laboratory; the invention of the transistor; the development of semiconductor techniques. 4. Integrated circuits: first trials; the explosion; iconic integrated analog and digital circuits. 5. Modern toys, or iconic electronic devices: not just radios and televisions; radar (a device of special significance); the early history of cell phones. <p>Computer science - Electrons count</p> <ol style="list-style-type: none"> 1. The first electronic computers: shooting tables and early calculators; based on tubes and transistors. The history of the microprocessor: invention (we'll meet again in court); development, or a revolution not just technical. 2. The history of the personal computer: beginnings, IBM PC, XT, AT 3. The history of operating systems: mainframe computer systems; UNIX; PC systems: CP/M, DOS, Windows, Linux. 4. The history of programming languages: from cables and switches to objects in RAM. <p>Photography On drawing with light</p> <ol style="list-style-type: none"> 1. Basics of photography: image creation and recording; camera obscura; lens: focal length, angle of view, aperture, and depth of field. 2. Early methods of chemical image recording: daguerreotype, collodion. Basics of silver photography: black-and-white and color silver processes; darkroom techniques; "noble" photographic techniques. 3. From the monocle to the superzoom the development of photographic lenses. 4. Types of cameras and their manufacturers: plate cameras, box cameras, Kodak "Brownie" cameras; medium format cameras; 35mm cameras; SLR and TLR cameras; flash; leading photographic equipment companies 5. The birth of digital photography 								
Prerequisites and co-requisites									
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 1106 794 1133">Subject passing criteria</th> <th data-bbox="799 1106 1137 1133">Passing threshold</th> <th data-bbox="1142 1106 1481 1133">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 1140 794 1167">Final exam</td> <td data-bbox="799 1140 1137 1167">50.0%</td> <td data-bbox="1142 1140 1481 1167">100.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Final exam	50.0%	100.0%
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Final exam	50.0%	100.0%							
Recommended reading	Basic literature	<p>* The IEEE History Center Engineering and Technology History (https://ethw.org/Main_Page)</p> <p>* Britannica <i>History of photography</i> (https://www.britannica.com/technology/photography)</p>							
	Supplementary literature	<p>* <i>Robert Buder, Radar</i></p> <p>* <i>Michael Pritchard, 50 Famous photographic cameras</i></p>							
	eResources addresses								
Example issues/ example questions/ tasks being completed	<p>* Order these inventions from oldest to oldest: silicon transistor, triode vacuum tube, diode vacuum tube, germanium transistor, microprocessor, digital integrated circuit.</p> <p>* Briefly discuss the history of the invention of the transistor.</p> <p>* What impact did materials science have on the development of photographic materials?</p>								
Practical activities within the subject	Not applicable								

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