



Subject card

Subject name and code	Technology and Civilization, PG_00056482						
Field of study	Mechanical and Medical Engineering, Mechatronics, Mechanical Engineering, Transport and Logistics, Power Engineering, Management and Production Engineering, Design and Construction of Yachts, Naval Architecture and Offshore Structures						
Date of commencement of studies	October 2026		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	1		Language of instruction			Polish	
Semester of study	1		ECTS credits			1.0	
Learning profile	general academic profile		Assessment form			assessment	
Conducting unit	Division of Mechanical Vehicles and Military Technology -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Wojciech Owczarzak				
	Teachers		dr inż. Wojciech Owczarzak				
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 address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=8729						
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		1.0		9.0	25
Subject objectives	Presentation of the development of civilization and technology from the dawn of humanity to the present day.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[K6_W71] has general knowledge in humanistic, social, economic or legal sciences, including their fundamentals and applications		The student knows the key stages in the development of civilization and technology, as well as the major inventions and technological achievements from prehistory to the present day.			[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation	
	[K6_U71] is able to apply knowledge from humanities, social sciences, economics, or law to solve problems		The student is able to analyze the relationships between technological development and social, economic, and cultural changes.			[SU2] Assessment of ability to analyse information [SU5] Assessment of ability to present the results of task	
	[K6_K71] is able to explain the need to apply knowledge from humanistic, social, economic or legal sciences in order to function in a social environment		The student understands the importance of technological development for social and civilizational changes and is able to assess its impact on the functioning of society.			[SK2] Assessment of progress of work	

Subject contents	Course content – lecture Definitions: technology, civilization, culture. A key invention of humankind: a container for transporting fire. Migrations. Paleolithic: first mechanical tools, first dwelling structures. Neolithic: the circle and the wheel. Bronze Age: mechanical metalworking. Iron Age: beginnings of metallurgy, plastic forming of metals, precision tools used in applied and decorative arts. Antiquity: the beam as a structural element, frame structures in shipbuilding, block and tackle, screw conveyor, the arch in construction, aqueducts as the first water-supply systems, projectile weapons. Prototype of the theodolite. Development of philosophy and mathematics. Middle Ages: printing press, water wheel and windmills: mechanical transmissions, mechanical energy storage systems, trigger mechanisms. Artesian wells. Renaissance: designs by da Vinci, constructions and works of Galileo, Kepler, Gilbert and Newton. French Revolution: the guillotine. Industrial Revolution: steam engine, mechanical spinning machine, programmable loom, mines, Bessemer steelworks, riveted bridges, steel ships, railways, tunnels, airplanes, tanks, telegraph, telephone, radio, internal combustion engine, automobile, production line, machine gun, patent law. World War I and World War II: mechanization of work, development of high-rise construction, construction of large machines (turbines), bridges, tunnels and canals; diesel engine, jet aircraft, rocket, tank. Modern times: space mechanics, nanomechanics, ecomechanics.								
Prerequisites and co-requisites									
Assessment methods and criteria	<table><tr><td>Subject passing criteria</td><td>Passing threshold</td><td>Percentage of the final grade</td></tr><tr><td>presentation</td><td>50.0%</td><td>100.0%</td></tr></table>	Subject passing criteria	Passing threshold	Percentage of the final grade	presentation	50.0%	100.0%		
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Recommended reading	Basic literature	- Basalla G., <i>The Evolution of Technology</i>, Cambridge University Press, 1988. - Mokyr J., <i>The Lever of Riches: Technological Creativity and Economic Progress</i>, Oxford University Press, 1990. - Landes D.S., <i>The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from 1750 to the Present</i>, Cambridge University Press. <i>Historia świata. Encyklopedia PWN</i>, Wydawnictwo Naukowe PWN, Warszawa.							
	Supplementary literature	- Diamond J., <i>Guns, Germs, and Steel: The Fates of Human Societies</i>, W.W. Norton & Company. - Smil V., <i>Creating the Twentieth Century: Technical Innovations of 1867–1914 and Their Lasting Impact</i>, Oxford University Press, 2005. - Smil V., <i>Transforming the Twentieth Century: Technical Innovations and Their Consequences</i>, Oxford University Press, 2006. - Mumford L., <i>Technics and Civilization</i>, University of Chicago Press. <i>Wielka Encyklopedia PWN</i>, Wydawnictwo Naukowe PWN.							
	eResources addresses								
Example issues/ example questions/ tasks being completed	Impact of a selected discovery/invention on the development of civilization. The most important technological achievements of the Bronze Age. Hypothetical functions of Stonehenge.								
Practical activities within the subject	Not applicable								

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