



Subject card

Subject name and code	, PG_00071345						
Field of study	Mechanical Engineering						
Date of commencement of studies	February 2025	Academic year of realisation of subject			2025/2026		
Education level	second-cycle studies	Subject group					
Mode of study	Part-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	3	ECTS credits			2.0		
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	dr hab. inż. Dariusz Fydrych					
	Teachers	dr hab. inż. Dariusz Fydrych dr inż. Aleksandra Świerczyńska					
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	18.0	0.0	0.0	0.0	0.0	18
	E-learning hours included: 0.0						
	eNauczanie source addresses: Moodle ID: 5074 Scientometria, PG_00071345, MiBM, II stopnia, sem.03, 2025/2026 https://enauczanie.pg.edu.pl/2025/course/view.php?id=5074						
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	18	0.0	0.0	18		
Subject objectives	The aim of the course is to understand and acquire the skills to apply quantitative methods for analyzing the scientific output of an individual, a research team, or an institution.						
Learning outcomes	Course outcome	Subject outcome		Method of verification			
	[K7_U71] is able to apply knowledge from humanistic, social, economic or legal sciences in order to solve problems	The student can solve problems using scientometric methods.		[SU2] Assessment of ability to analyse information			
	[K7_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 distinguishes and classifies scientometric methods		[SK5] Assessment of ability to solve problems that arise in practice			
	[K7_W71] has general knowledge in humanistic, social, economic or legal sciences, including their fundamentals and applications	The student demonstrates the ability to work effectively in a team environment.		[SW1] Assessment of factual knowledge			
Subject contents	Course content – lecture An introduction to scientometrics (definition of scientometrics and scientometrics studies, history and development of the field, connections with bibliometrics and webometrics, objectives and applications in science and industry), indicators for evaluating scientific output (number of publications and citations, h-index, m-index, g-index, Impact Factor, CiteScore, SNIP, SJR, comparative analysis of indicators), data sources and scientific databases (overview of bibliographic databases: Scopus, Web of Science, Google Scholar, ORCID and researcher identifiers, practical search for publications and citation analysis), methods of scientific analysis (quantitative analysis of the scientific output of individuals, teams, and institutions, co-authorship and co-citation maps, analysis of research trends and hot topics, classification and grouping of scientometric methods), evaluation of science and institutions (systems for assessing universities and disciplines, the role of indicators in research funding, comparative analysis of countries and institutions), ethics and good practices (plagiarism and self-plagiarism, predatory journals, manipulation of citation metrics, transparency and reliability of scientific data), and practical applications (evaluation of the scientific output of individuals, teams, and institutions, planning publication strategies, bibliometric and analytical reports, forecasting trends in scientific research).						

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test	56.0%	100.0%
Recommended reading	Basic literature	<p>Nowak, P. (2006). <i>Bibliometria, webometria: podstawy, wybrane zastosowania</i>. Wydawnictwo Naukowe UAM.</p> <p>Van Eck, N., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. <i>scientometrics</i>, 84(2), 523-538.</p> <p>Świerczyńska, A., Janeczek, A., Pandey, C., Varbai, B., & Fydrych, D. (2026). A bibliometric review of A-TIG welding: unveiling global research trends. <i>The International Journal of Advanced Manufacturing Technology</i>, 1-21.</p> <p>Maliha, H. (2023). A review on bibliometric application software. <i>Scientometrics Letters</i>, 1(1).</p> <p>Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. <i>Journal of informetrics</i>, 11 (4), 959-975.</p>	
	Supplementary literature	Kara, B. C., Şahin, A., & Dirsehan, T. (2025). BibexPy: Harmonizing the bibliometric symphony of Scopus and Web of Science. <i>SoftwareX</i> , 30, 102098.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<p>Characterize the quantitative methods for analyzing scientific output.</p> <p>Describe the role of scientometrics in evaluating the scientific output of an individual, a research team, and an institution.</p> <p>Describe the risks and problems associated with manipulating citation and publication metrics.</p> <p>Characterize good publication practices in the context of research ethics.</p>		
Practical activities within the subject	Not applicable		

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