



Subject card

Subject name and code	, PG_00070060						
Field of study	Zespołowy projekt badawczo-wdrożeniowy						
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	Full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish -		
Semester of study	2		ECTS credits		5.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Division of Applied Mechanics and Biomechanics -> 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. Marek Chodnicki				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	20.0	20.0	40
	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	40		5.0		80.0	125
Subject objectives	The aim of the course "Team Research and Implementation Project" is to enable students to acquire the skills of planning and implementing research and development work in a team, including defining the problem, selection of research methods, conducting research/analysis, developing a technical solution and preparing its initial implementation, along with the presentation of results in the form of a report and/or demonstrator.						
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		Upon completion of the course, students will recognize the key importance of specialized knowledge in solving research and practical problems and will critically evaluate the information obtained, verifying its reliability and usefulness for the project being carried out.		[SK1] Ocena umiejętności pracy w grupie [SK5] Ocena umiejętności rozwiązywania problemów występujących w praktyce		
	[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		After completing the course, students will have in-depth knowledge enabling them to identify key objects and phenomena related to the research and implementation project, know the theories describing them, and select appropriate analytical and design methods for developing engineering solutions.		[SW1] Ocena wiedzy faktograficznej		
	[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		After completing the course, students will be able to independently formulate complex research problems, select appropriate methods leading to innovative solutions, and effectively collaborate with others both as leaders and as members of a project team.		[SU1] Ocena realizacji zadania [SU5] Ocena umiejętności zaprezentowania wyników realizacji zadania		

Subject contents	Course content – project Introduction to research and implementation projects: specifics, stages, roles in the project team. Identification and formulation of a research problem/implementation need, determination of the project's objective and scope. Literature and state of the art review source search, analysis of reference solutions, identification of research gaps. Work planning: division of tasks within the team, schedule, milestones, basics of project management. Selection of research methods and engineering tools (measurements, calculations, simulations, prototyping, tests). Implementation of the research and/or design part: preparation of the workstation, performance of tests, analysis of results. Development of a technical solution/implementation concept, preliminary assessment of feasibility and risks. <u>Project documentation: technical report, presentation of results, basics of intellectual property protection.</u> Course content – seminar Introductory seminar: discussion of the course objectives, project work rules, and expected results. Presentation and discussion of project topic proposals by teams clarification of the goal and scope. Literature seminars: presentations of literature reviews and existing solutions, critical analysis of the state of knowledge. Presentation of research methodology/technical solutions discussion on the selection of methods and tools. Regular reporting seminars: progress reporting, discussion of problems encountered, and joint search for solutions. Seminar devoted to the analysis of risks, project limitations, and possible directions for further work. Final presentation rehearsals (so-called "pre-defense") practicing presentations, discussing the structure of the report and formal requirements. Summary seminar: presentations of final project results, discussion of effects, conclusions, and implementation potential.		
Prerequisites and co-requisites	Prerequisites: basic knowledge of mechanics and machine design, manufacturing technology, and engineering testing methods, as well as completion of previous projects/laboratories in the field. Additional requirements: ability to work in a team, basic knowledge of IT tools supporting design and project management (e.g., CAD, spreadsheets, simple scheduling tools), and willingness to independently search for and analyze technical literature.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	project implementation	60.0%	100.0%
Recommended reading	Basic literature	Anthony T. Cobb, Leading Project Teams: The Basics of Project Management and Team Leadership, SAGE, 2nd ed., 2011 Karl T. Ulrich, Steven D. Eppinger, Product Design and Development, 5th ed., McGraw-Hill/Irwin, 2012	
		Harold Kerzner, Project Management: A Systems Approach to Planning, Scheduling, and Controlling, 12th ed., Wiley, 2017 Robert G. Cooper, Winning at New Products: Creating Value Through Innovation, 4th ed., Basic Books, 2011	
	eResources addresses		

Example issues/ example questions/ tasks being completed	Define the research problem based on actual industrial needs (or a case study) and formulate the main objective and specific objectives of the project. Develop a brief overview of the literature and state of the art for the selected topic indicate existing solutions and identify the gap that the project is intended to fill. Prepare a project schedule (Gantt chart) with your team, dividing tasks, responsibilities, and milestones. Propose research methods (measurements, calculations, simulations, prototype testing) appropriate for verifying the hypothesis/project objective. Develop a technical solution concept (3D model, diagram, algorithm, technological procedure) and present it at a seminar. Conduct selected research/experiments, present the results in the form of tables/charts, and formulate conclusions. Make a preliminary assessment of the implementation possibilities identify potential users, implementation barriers, technical and organizational risks. Prepare a final project report (structure: introduction, state of knowledge, methodology, results, conclusions, prospects for further work) and an oral presentation for the "project committee."
Practical activities within the subject	Not applicable

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