GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Research project II, PG_00053361		
Field of study	Electronics and Telecommunications		
Date of commencement of studies	February 2023	Academic year of realisation of subject	2023/2024
Education level	second-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
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	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Computer Communications -> Faculty of Electronics, Telecommunications and Informatics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Krzysztof Nowicki	
	Teachers	dr inż. Krzysztof Nowicki	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	30.0	0.0	30
	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	30	5.0	25.0	60

Subject objectives	The research project is aimed at preparing students for future work in a research team and teaching them to meet obligations resulting from the agreed schedule in a timely manner. The immediate goal of the research project is to carry out works in which the student or students will verify the research hypothesis set by the client. For this purpose, the project may require the implementation of a product, e.g. an application, device, and conducting appropriate research, analysis of the results, etc.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U03] can design, according to required specifications, and make a complex device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment	The student is able to design, in accordance with the given specification, and make a complex device, object, ICT system or implement the ICT process, using appropriately selected methods, techniques, tools and materials, using engineering standards and norms, using ICT technologies and using the experience gained in the environment professionally involved in engineering activities	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment
[K7_K01] is ready to create and develop models of proper behaviour in the work and life environment; undertake initiatives; critically evaluate actions of their own, teams and organisations they are part of; lead a group and take responsibility for its actions; responsibly perform professional roles taking into account changing social needs, including:n - developing the achievements of the profession,n- observing and developing rules of professional ethics and acting to comply to these rulesn	the student has the knowledge to develop patterns of proper conduct in the work and living environment, to critically evaluate the groups in which he participates, to lead the group and to properly distribute roles and tasks among group members	[SK5] Assessment of ability to solve problems that arise in practice
[K7_U11] can manage team work	the student understands the role of project management, knows and applies the selected method of managing group work, supervising the production of project documentation	[SU1] Assessment of task fulfilment
[K7_W09] Knows and understands, to an increased extent, the economic, legal and other conditions of various types of activities related to the given qualification, including the principles of protection of industrial property and copyright.	the student has the knowledge to assess the economic and legal possibilities of project implementation. Is able to analyze data from a research experiment.	[SW1] Assessment of factual knowledge
[K7_W07] Knows and understands, to an increased extent, the general principles of creating and developing forms of individual entrepreneurship.	the student has knowledge of the legal and non-legal aspects of individual entrepreneurship	[SW1] Assessment of factual knowledge

Subject contents

The client defines the research problem by entering the content of the project into the "Group and research project service" system. If the Client is a WETI employee, the topic should be of a research nature, i.e. contain a research hypothesis for verification. In the case of an external customer, it is allowed to define an application topic consisting in the production of a prototype / product, e.g. a device / application. Depending on the requirements of the external client, the project may require the implementation of an application solution (e.g. an application, a fragment of code) completed in whole or in part, which can be used in a company, organization, institution (i.e. it has the potential for this, has certain functional features, and not only experimental) and optionally includes research elements.

Prerequisites and co-requisites

The obligatory result of a research project for projects with a research hypothesis is a report in the form of a publication formatted according to the IEEE template, prepared in English. For application projects, a report in the form of a patent application (application) is also allowed.In the case of a report in the form of a publication, the information about the Project Supervisor and his affiliation should be included in the "Acknowledgment" section.Interested Students can prepare, together with the Tutor / ETI staff / other people who participated in the research:1. A scientific publication prepared in accordance with the editorial requirements of the intended place of publication (journal, conference), using a template, e.g. IEEE, Elsevier, Springer etc. Publication follows the procedures of the publishing house. Co-authors contribute creatively to the publication.2. Patent application - depending on the requirements - in Polish or English.The report is required to include such elements as:1. Definition of the problem and research hypothesis.2. A state-of-the-art section summarizing existing solutions / results in the context of the problem under consideration.3. Solution proposal.4. Details of the solution, e.g. algorithm design, implementation, applied optimizations.5. Experiments and research.6. Discussion of the results and verification of the research hypothesis.If the project ends with a result that can be used in further research work of the department (including, for example, an application that was used for research, verification of the hypothesis) and if the University and the student express such a will, an agreement is concluded on the transfer of property rights to the results that have been obtained (at the end of the research project).Additional requirements may be formulated for project implementers for an external client.

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>project</td><td>50.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>materials related to the project being implemented</td></tr>
<tr><td>Supplementary literature</td><td>Management books</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:
Projekt badawczy 2023/24 - Moodle ID: 34864
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=34864</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Infrared image analysis and segmentation of facial feature elements in thermograms using AI for COVID-19 prevention

Implementation of a WBAN radiolocalization system prototype using deep learning algorithms

Supporting the safety of people and car intelligence with the use of automatic pedestrian detection in thermal image sequences</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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