GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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|---|---|---|---|
| Subject name and code | Research project II, PG_00054225 | | |
| Field of study | Space and Satellite Technologies | | |
| Date of commencement of studies | February 2024 | Academic year of realisation of subject | 2024/2025 |
| Education level | second-cycle studies | Subject group | Obligatory subject group in the field of study<br>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 | 4.0 |
| Learning profile | general academic profile | Assessment form | assessment |
| Conducting unit | Department of Geoinformatics -> Faculty of Electronics, Telecommunications and Informatics | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr hab. inż. Zbigniew Łubniewski | |
| | Teachers | dr hab. inż. Marek Moszyński | |

**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 | 7.0 | 63.0 | 100 |

**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 | Student can prepare a scientific study on detailed issues in the field of space and satellite technologies, as well as present the results of his own research. | [SU1] Assessment of task fulfilment<br>[SU2] Assessment of ability to analyse information<br>[SU3] Assessment of ability to use knowledge gained from the subject<br>[SU4] Assessment of ability to use methods and tools |
| [K7_K03] Can analyse and implement assigned tasks while maintaining high technical standards. Is able to work and interact in a group, taking on different roles. Adheres to the principles of professional ethics and respects the diversity of views and cultures. | Student can work and collaborate in a group as part of a project team, playing various roles in it. | [SK4] Assessment of communication skills, including language correctness<br>[SK1] Assessment of group work skills |
| K7_U01 | Student can obtain information from various sources required in the implementation of a project task, interpret them, as well as draw conclusions and formulate and justify opinions. | [SU1] Assessment of task fulfilment<br>[SU2] Assessment of ability to analyse information<br>[SU3] Assessment of ability to use knowledge gained from the subject<br>[SU4] Assessment of ability to use methods and tools |
| K7_W06 | Student has in-depth knowledge of the state of research and use of outer space. | [SW3] Assessment of knowledge contained in written work and projects |

## 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.

## Assessment methods and criteria

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| project | 50.0% | 100.0% |

## Recommended reading

| | |
|---|---|
| Basic literature | materials related to the project being implemented |
| Supplementary literature | Project management litarature i.e.<br><br>Project Management Body of Knowledge. |
| eResources addresses | Adresy na platformie eNauczanie: |

| | |
|---|---|
| Example issues/ example questions/ tasks being completed | The acquisition system of radioastronomy signals and its analysis.<br><br>Craters on Mars searching algorithms.Air quality monitoring platform using satellite data. |
| Work placement | Not applicable |

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