# COURSE DESCRIPTION CARD - SYLLABUS

Course name
Implementation project [S2Inf1-PB>PROJW]

## Course

Field of study
Computing

Year/Semester
1/2

Area of study (specialization)
Edge Computing

Profile of study
general academic

Level of study
second-cycle

Course offered in
polish

Form of study
full-time

Requirements
compulsory

## Number of hours

Lecture
0

Laboratory classes
0

Other (e.g. online)
0

Tutorials
0

Projects/seminars
30

## Number of credit points

2,00

## Coordinators

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## Lecturers

## Prerequisites

Extensive knowledge of the basic problems of boundary processing, methods of solving them, including advanced methods presented in the subjects preceding the project. Ability to apply the above methods to solve problems in this area. Should have the ability to obtain information from the indicated sources. He/she should also understand the necessity of extending his/her competences / be ready to undertake cooperation within a team. Moreover, in terms of social competence, a student must present such attitudes as honesty, responsibility, perseverance, cognitive curiosity, creativity, personal culture, respect for other people.

## Course objective

1. Implementation of an advanced research and implementation project in the field of edge computing in order for students to gain knowledge and practical skills . The project will be carried out in teams of several people (about 5 students) 2. developing students" skills in solving problems that occur in complex information technology projects related to the specialty, i.e., edge computing 3. shaping in students the ability to work in a team while conducting a complex IT project.

## Course-related learning outcomes

Knowledge:
the student has advanced and deepened knowledge of broadly understood information systems, theoretical foundations of their construction and methods, tools and programming environments used for their implementation (k2st_w1). has well-ordered and theoretically grounded general knowledge connected with key issues of computer science (k2st_w2). has advanced detailed knowledge of selected issues in the field of computer science, which allows to complete an implementation project (k2st_w3). has knowledge on development trends and most significant new achievements of computer science and other, selected, related scientific disciplines (k2st_w4). has advanced and detailed (k2st_w5). he knows advanced methods, techniques and tools used in solving complex engineering tasks and conducting research works in edge processing (k2st_w6). has knowledge on ethical codes connected with scientific and research work conducted in the field of computer science (k2st_w7).

Skills:
the student is able to acquire information from literature, databases and other sources, e.g. technical documentation of devices or systems (in polish and english), integrate them, interpret and critically evaluate, draw conclusions and formulate and exhaustively justify opinions (k2st_u1). is able to use information and communication techniques used in the realization of it projects (k2st_u2). can use analytical, simulation and experimental methods to formulate and solve engineering tasks and simple research problems (k2st_u4). can - in formulating and solving engineering tasks - integrate knowledge from different fields of computer science (and if necessary also knowledge from other scientific disciplines) and apply a system approach, taking into account also non-technical aspects (k2st_u5). is able to assess the usefulness and possibility of using new achievements (methods and tools) and new it products in a given project (k2st_u6). is able to critically analyse existing technical solutions and propose their improvements (k2st_u8). is able to assess the usefulness of methods and tools for solving a project task, consisting in construction or assessment of an it system or its components, including recognising the limitations of these methods and tools (k2st_u9). can - according to a given specification, taking into account non-technical aspects - design a complex device, information system or process and implement the project - at least in part - using appropriate methods, techniques and tools, including adapting existing ones or developing new ones (k2st_u11). can cooperate in a project team, taking various roles in it (k2st_u15).

Social competences:
understands that in computer science knowledge and skills become outdated very quickly (k2st_k1) is able to inspire and organise the learning process of others (k2st_k2) and is aware of the need to develop professional achievements and observe the rules of professional ethics (k2st_k4).

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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The result of the research and implementation project must be a completed solution, in whole or in part, which can be applied in a company, organisation, institution, etc. A document confirming the completion of the research and implementation project will be the presentation of a report on the research and implementation project together with a written recommendation from the supervisor from the company.
For the evaluation of the project, the mentor will agree with the student team on the milestones that must be achieved in the planned time. At the end of the semester, the mentor verifies their achievement and summarises the progress of the student team.
Formative assessment:
On the project(s): on the basis of the assessment of the ongoing progress of the tasks, research and implementation of the project(s).
Summative assessment:
in the scope of the project/projects, verification of the assumed learning outcomes is realized by:
- assessment of the student"s preparation for individual stages of the project,
- evaluation of the tasks prepared partly during the project and partly after its completion; this evaluation includes also teamwork skills,
- evaluation of knowledge and skills, competence growth connected with the preparation and realisation and presentation of individual tasks,
on the basis of a written recommendation from a mentor from the company.
Obtaining additional points for activity during the project, especially for:

- effectiveness of applying the acquired knowledge when solving a given problem,
- ability to cooperate within a team practically implementing a detailed task

## Programme content

The scope and tasks set for the students in the research and implementation project depend on the specifics of the problem, which will be proposed by the companies cooperating with the Shore Processing specialisation. At the beginning of the semester, students will be introduced to the project challenges proposed by the companies (5-8 topics). The topics of the projects will be related, among others, to the software running on the given hardware, e.g. detection of people, objects in the camera image, recognition of traffic signs in the video, mobile systems for diagnosis, reporting, authentication, etc. The projects will be advanced, with quite extensive functionality so that a group of about 5 students will be able to complete it.

## Teaching methods

Indywidualne spotkania studentów z opiekunem projektu badawczo-wdrożeniowego, w ramach których studenci przedstawiają opracowane rozwiązania. Spotkania z przedstawicielem firmy - opiekunem zaproponowanego tematu projektu. Częstotliwość spotkań z opiekunem z firmy i forma spotkań do ustalenia.

## Bibliography

Basic
1. Zarządzanie projektami informatycznymi, M. Flasiński, PWN, Warszawa, 2006
Additional
1. A Guide to the Project Management Body of Knowledge (PMBOK Guide), Project Management Institute, 2017

## Breakdown of average student's workload

| | Hours | ECTS |
|---|---|---|
| Total workload | 50 | 2,00 |
| Classes requiring direct contact with the teacher | 30 | 1,50 |
| Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation) | 20 | 0,50 |