COURSE DESCRIPTION CARD - SYLLABUS

Course name
Problem workshop [S2Teleinf2>PP]

Course

Field of study
Teleinformatics

Year/Semester
1/1

Area of study (specialization)
–

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
0

Tutorials
0

Projects/seminars
90

Number of credit points

5,00

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Prerequisites

Knowledge: a. Computer science knowledge: students should have a solid foundation in computer science, including an understanding of computer structure, computer network architecture, operating systems, databases, etc. b. Knowledge in telecommunications: students should be familiar with basic concepts and technologies related to telecommunications, such as mobile networks, data transmission protocols, telecommunications infrastructure, multimedia. c. Understanding of mathematics and statistics: students should have knowledge of mathematics and statistics at a level that enables them to understand these methods and their application. Skills: a. Programming: students should be able to program in at least one programming language frequently used in the ICT field, such as Java, C++, Python or others. b. Working with operating systems: ability to manage and configure operating systems, especially in the context of computer networks. c. Data analysis: skill in data analysis, including the use of statistical analysis tools and

data visualisation tools. Competencies: a. Problem solving: students should be able to solve ICT problems independently, both theoretical and practical. b. Communication and collaboration:the ability to communicate and collaborate with others in a team, especially during research projects or practical work. c. Self-discipline and self-education: students should be ready for continuous self-education and improvement of their skills.

Course objective

The aim is to enable students to design and develop practical ICT systems or applications that solve specific problems or meet specific requirements. To integrate knowledge from different disciplines such as computer science, telecommunications, mathematics and others to solve complex ICT problems. Developing the ability to analyse situations, identify problems, generate solutions and make decisions in an ICT context. Team collaboration, promoting the ability to work in project teams, which are often essential in today's ICT working environment.

Course-related learning outcomes

Knowledge:
Student knows the basics of scientific work
The student has knowledge of advanced ICT concepts and theories such as computer network architecture, communication protocols, wireless technologies, network security and others. - K2_W01
Students will be able to analyse and understand complex ICT problems and identify key aspects and factors affecting these problems.
Students will be familiar with the various tools, technologies and programming environments used in ICT and understand how to use them effectively in solving problems. - K2_W02, K2_W04

Skills:
The student is able to develop the ability to design, implement and test advanced ICT solutions, taking into account various aspects such as performance, scalability and security. - K2_U06, K2_U07
The student is able to collect, analyse and interpret data related to ICT and make decisions based on these analyses. - K2_U10
The student is able to develop effective technical communication skills, including written and oral presentation of the results of his/her work.
Can formulate and test hypotheses on complex engineering problems and simple research issues - K2_U13
Can evaluate the suitability of different methods and tools used to solve engineering problems. Identifies limitations of methods and tools. - K2_U18, K2_U19, K2_U20
Can evaluate the cost and economic impact associated with the development and preparation of an ICT solution - K2_U15

Social competences:
The student will be able to work effectively in project teams, share knowledge and coordinate activities to achieve a common goal. - K2_K05
The student will be able to manage his/her work independently, take initiative and make decisions in the context of a problem laboratory. K2_K02, K2_K04
The student will understand and apply the ethical principles related to ICT work, including aspects related to data security and privacy. - K2_K06

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Problem-solving task: case studies that require working together in teams to analyse and solve problems. Assessment of the ability to collaborate, prioritise and propose effective solutions. Assessment of critical thinking, problem-solving skills and team dynamics. Assessment of the ability to collaborate and participate effectively in team discussions and the level of involvement in problem-solving processes.
Skills are determined by the OR report.
Social competence (KS) is assessed by evaluating the ability to listen actively, the ability to collaborate and participate effectively in team discussions and the level of involvement in problem-solving processes .

A weighted average is determined: OK = 0.7 x OR + 0.3 x KS and grades are given:
5.0 for OK > 4.75;
4.5 for 4.75 > OK > 4.25;
4,0 for 4,25 > OK > 3,75;
3,5 for 3,75 > OK > 3,25;
3,0 for 3,25 > OK > 2,75;
2,0 for OK < 2,75

Programme content

Students are solving selected problems from the ICT domain

Course topics

Carry out an analysis of the analytical problem, including a critical review of the literature and existing solutions. Analyses in terms of the costs associated with solving a problem.

Teaching methods

Work on real ICT problems, design and implement a solution, and then present the solution. Projects can be individual or group, and the level of sophistication can be adapted to the students' level.

Bibliography

Basic:
Literature on the subject, indicated by the course tutor and found by the student in the bibliographic databases indicated

Additional:
Additional literature on the subject, indicated by the course tutor and found by the student in the bibliographic databases indicated

Breakdown of average student's workload

	Hours	ECTS
Total workload	130	5,00
Classes requiring direct contact with the teacher	90	3,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	40	1,50