POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Security in the Internet of Things [N2Inf1-AMiWdIP>BEZIP]

Course

Field of study
Computing

Year/Semester
2/3

Area of study (specialization)
Mobile and Embedded Applications for the Internet of Things

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
part-time

Requirements
compulsory

Number of hours

Lecture
18

Laboratory classes
24

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

5,00

Coordinators

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Lecturers

Prerequisites

A student entering this subject should have a basic knowledge of computer networks, operating systems, Internet applications and information system security. He or she should also have the ability to obtain information from the indicated sources and have a willingness to cooperate as part of a team.

Course objective

Provide students with an extended knowledge of computer systems and the Internet of Things in the field of security of these systems. Developing students" skills in solving problems related to security in computer systems and the Internet of Things.

Course-related learning outcomes

Knowledge:
1. Has ordered, theoretically founded general knowledge in the field of operating systems and network technologies 2. Has theoretically founded detailed knowledge related to selected issues in the field of computer science, such as: security of information systems and the Internet of Things 3. Has knowledge of development trends and the most important new achievements in information technology in the field

of data protection and security of computer systems

Skills:
1. Is able to use the services available in computer systems and the Internet of Things, taking into account the security aspect. 2. Is prepared to use in professional work the components of computer systems and the Internet of Things in a way that takes into account the security of the solutions created.

Social competences:
Understands that knowledge and skills become obsolete very quickly in computing

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The knowledge acquired in the lecture will be tested in a credit test. Pass mark: 50% of the mark. Optionally, the mark can be increased by an oral examination.

The skills acquired during the laboratory classes are verified on the basis of the presentation of the project consisting in the analysis of the indicated problem related to security in the Internet of Things.

Programme content

Cyber security issues: threats and techniques to improve cyber security.

Course topics

The lecture topics include the following:
- Introduction to cyber security issues
- Authentication: passwords, keyloggers, biometrics, cryptography vs. quantum computers
- Privacy and anonymity
- Social media
- Social engineering
- Threats: spam, phishing, spyware, phishing, stalking, scam, metadata
- Attacks: SSL striping, HTTP Session hijacking
- New concepts: anti-fragility, segmentation, Zero Trust
- Capture The Flag

The laboratory program includes a deepening of the issues discussed in lectures through practical exercises or analysis of realized experiments.

Teaching methods

lecture: multimedia presentation, demonstration of examples of threats and methods of defense

laboratory exercises: practical exercises, discussion, team work, analysis of multimedia materials

Bibliography

Basic
1. Viega J., Mity bezpieczeństwa IT, Helion, 2010
2. Strebe M., Podstawy bezpieczeństwa sieci, Mikom, 2005
3. Sikorski M., Roman A. M., Internet rzeczy, PWN 2020
Additional
1. Zalewski M., Cisza w sieci, Helion, 2005
2. Zalewski M., Splątana sieć, Helion, 2012

Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,00
Classes requiring direct contact with the teacher	44	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	81	3,00