



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Security in Computer Systems [N2Inf1-IWPB>BSK]

### Course

Field of study

Computing

Year/Semester

2/3

Area of study (specialization)

Information Technology in Business Processes

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

16

Laboratory classes

16

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

### Number of credit points

4,00

### Coordinators

dr inż. Tomasz Łukaszewski

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### Lecturers

### Prerequisites

The student starting this course should have basic knowledge of computer networks, operating systems, internet applications and security of information systems. He should also have the ability to obtain information from the indicated sources and be ready to cooperate as part of the 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. A list of topics will be given to students in advance.

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

The lecture programme includes, but is not limited to, the following topics:

- Introduction to cyber security issues
- Password security, keyloggers, Biometrics, Cryptography and quantum computers
- Security of electronic services: e-banking, e-commerce
- Payment card security, RFID technology,
- Privacy and anonymity in computer systems.
- Security of social media.
- Threats: spam, phishing, spyware, phishing, stalking, scam, CBRN threats.
- Attacks: SSL strip, HTTP Session hijacking, Metasploit,
- New concepts: anti-fragility, segmentation, Zero Trust
- Capture The Flag
- Metadata

The lab programme includes a deepening of the topics discussed in the lectures. In addition, in the final labs, students present the work done as part of a project - discussing the results of an analysis of a problem related to security in computer systems and the Internet of Things.

## 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	100	4,00
Classes requiring direct contact with the teacher	34	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	66	2,50