Faculty of Fundamental Problems of Technology

COURSE CARD

Name in polish	:	**Bezpieczeństwo przetwarzania w chmurze**
Name in english	:	**Security in Cloud Computing**
Field of study	:	Computer Science
Specialty (if applicable)	:	
Undergraduate degree and form of	:	masters, stationary
Type of course	:	optional
Course code	:	E2_W31
Group rate	:	Yes

	Lectures	Exercides	Laboratory	Project	Seminar
Number of classes held in schools (ZZU)	30		30		
The total number of hours of student workload (CNPS)	90		90		
Assesment	pass				
For a group of courses final course mark	X				
Number of ECTS credits	3		3		
including the number of points corresponding to the classes of practical (P)			3		
including the number of points corresponding occupations requiring direct contact (BK)	2		2		

PREREQUISITES FOR KNOWLEDGE, SKILLS AND OTHER POWERS

Knows and administers chosen OS.

COURSE OBJECTIVES

C1 The course targets: the security solutions for major platforms of cloud computing. The main goal is to review secure architectures, infrastructures, and software components using the user-centric and data-centric approach

C2 The goal is to: train security procedures in cloud computing platforms, gain practical attack/defend skills in remote and virtual environment.

COURSE LEARNING OUTCOMES

The scope of the student's knowledge:

W1 Knows security aspects of hardware architectures for cloud computing

W2 Knows security aspects of software architectures for cloud computing.

W3 Knows cryptographic schema which of security extensions for cloud computing

The student skills:

U1 Can manage cloud software as a security administrator

U2 Can use client software and various extensions to provide secure data processing at cloud.

U3 Can configure remote user environment for secure computing.

The student's social competence:

K1 Can present arguments for securing remote computation.

K2 Can present legal aspects of cloud computing.

COURSE CONTENT

Type of classes - lectures		
Wy1	Data management	4h
Wy2	Durability of data in cloud.	6h
Wy3	Operation on common data.	6h
Wy4	Secure remote functionality.	4h
Wy5	Private information retrieval.	6h
Wy6	Secure multiparty computation	4h

Type of classes - laboratory		
Lab1	Identity and anonymous credentials management	10h
Lab2	Securing communication	10h
Lab3	Data management	8h
Lab4	Multiparty signatures	2h

Applied learning tools

1. Traditional lecture
2. Multimedia lecture
3. Solving tasks and problems
4. Solving programming tasks

EVALUATION OF THE EFFECTS OF EDUCATION ACHIEVEMENTS

Value	Number of training effect	Way to evaluate the effect of education
F1	W1-W3, K1-K2	
F2	U1-U3, K1-K2	List of Lab Exercises.
P=%*F1+100%*F2		

BASIC AND ADDITIONAL READING
1. Chosen OS documentation. 2. Chosen cloud platform documentation.

SUPERVISOR OF COURSE
dr inż. Łukasz Krzywiecki

RELATIONSHIP MATRIX EFFECTS OF EDUCATION FOR THE COURSE
Security in Cloud Computing
WITH EFFECTS OF EDUCATION ON THE DIRECTION OF COMPUTER SCIENCE

Course training effect	Reference to the effect of the learning outcomes defined for the field of study and specialization (if applicable)	Objectives of the course**	The contents of the course**	Number of teaching tools**
W1	K2_W02 K2_W05 K2_W07	C1	Wy1-Wy6	1 2
W2	K2_W05 K2_W07	C1	Wy1-Wy6	1 2
W3	K2_W02 K2_W03 K2_W04 K2_W05	C1	Wy1-Wy6	1 2
U1	K2_U05 K2_U06	C1	Lab1-Lab4	3 4
U2	K2_U03	C1	Lab1-Lab4	3 4
U3	K2_U05 K2_U06	C1	Lab1-Lab4	3 4
K1	K2_K01 K2_K09	C1 C2	Wy1-Wy6 Lab1-Lab4	1 2 3 4
K2	K2_K03 K2_K05	C1 C2	Wy1-Wy6 Lab1-Lab4	1 2 3 4