Faculty of Information and Communication Technology/Department of Fundamentals of Computer Science

COURSE CARD

Name of the course in polish	:	**Komunikacja i Infrastruktura Bezpieczeństwa**
Name of the course in english	:	**Communication and Security Infrastructure**
Field of study	:	Algoritmic Computer Science
Specialty (if applicable)	:	
Level and form of studies	:	II degree, stationary
Type of course	:	compulsory
Course code	:	W04INA-SM4011G
Group of courses	:	Yes

	Lectures	Exercides	Laboratory	Project	Seminar
Number of classes held in schools (ZZU)	30		30		
The total number of hours of student workload (CNPS)	50		70		
Assesment	exam				
For a group of courses final course mark	X				
Number of ECTS credits	2		2		
including the number of points corresponding to the classes of practical (P)			2		
including the number of points corresponding occupations requiring direct contact (BK)	2		2		

PREREQUISITES FOR KNOWLEDGE, SKILLS AND OTHER POWERS

COURSE OBJECTIVES

C1 Learning the fundamental protocols and data structures used for authentication and to secure communication.

C2 Learning the libraries implementing the protocols discussed during the lectures and learning tools for testing them.

COURSE LEARNING OUTCOMES

The scope of the student's knowledge:

W1 He/she knows the functionalities and purpose of the basic protocols used to secure communication.

W2 He knows the algorithms used by the above-mentioned protocols.

W3 He knows what are the most popular libraries implementing the above-mentioned protocols.

The student skills:

U1 Can implement specific functionalities of the above-mentioned protocols using mechanisms delivered by popular libraries.

U2 He can effectively test the implemented functionalities based on generally available tools and packages.

The student's social competence:

K1 Can carry out tasks pragmatically and creatively.

COURSE CONTENT		
Type of classes - lectures		
Wy1	Public Key Infrastructure - X.509 Certificates, hierarchy, crosscertification (X-certification)	6h
Wy2	TLS protocol	6h
Wy3	IPSec	6h
Wy4	LDAP + SASL	6h
Wy5	DNSSec	4h
Wy6	Protocols and management of WIFI networks networks.	2h
	Sum of hours	30h
Type of classes - laboratory		
Lab1	openssl	6h
Lab2	openswan/libreswan/strongswan	6h
Lab3	OpenLDAP, Apache Directory Studio, web2ldap, python-ldap	7h
Lab4	Cyrus SASL	7h
Lab5	OpenDNSSEC	4h
	Sum of hours	30h

Applied learning tools

1. Traditional lecture
2. Solving programming tasks
3. Consultation
4. Self-study students

EVALUATION OF THE EFFECTS OF EDUCATION ACHIEVEMENTS

Value	Number of training effect	Way to evaluate the effect of education
F1	W1-W3, K1-K1	Final test
F2	U1-U2, K1-K1	Evaluation of the solutions of the lists of tasks
P=0.4%*F1+0.6%*F2		

BASIC AND ADDITIONAL READING

1. RFC 5280, 5246, 8446, 6071, 4511, 4033-4035
2. https://www.openssl.org/
3. https://openswan.org/
4. https://www.opendnssec.org/

SUPERVISOR OF COURSE

dr Przemysław Kubiak

MATRIX OF LEARNING OUTCOMES FOR THE SUBJECT
Komunikacja i Infrastruktura Bezpieczeństwa
WITH LEARNING OUTCOMES IN THE FIELD OF ALGORITHMIC COMPUTER SCIENCE

Subject learning effect	Relating the subject effect to the learning outcomes defined for the field of study	Objectives of the course**	Program content**	Teaching tool number**
W1	K2_W01 K2_W03 K2_W04 K2_W07	C1	Wy1-Wy6	1 3 4
W2	K2_W01 K2_W02 K2_W03 K2_W04 K2_W07	C1	Wy1-Wy6	1 3 4
W3	K2_W03 K2_W06 K2_W07	C1	Wy1-Wy6	1 3 4
U1	K2_U03 K2_U06 K2_U10 K2_U13	C2	Lab1-Lab5	2 3 4
U2	K2_U01 K2_U02 K2_U03 K2_U10 K2_U13	C2	Lab1-Lab5	2 3 4
K1	K2_K02 K2_K04 K2_K09 K2_K10	C1 C2	Wy1-Wy6 Lab1-Lab5	1 2 3 4