

FACULTY OF COMPUTER SCIENCE AND MANAGEMENT					
SUBJECT CARD					
Name in Polish Bezpieczeństwo Systemów Teleinformatycznych					
Name in English Security in Computer Network					
Main field of study (if applicable): Computer Science					
Specialization (if applicable):					
Level and form of studies: 1st/ 2nd * level, full-time / part-time*					
Kind of subject: obligatory / optional / university-wide *					
Subject code INZ0282W1					
Group of courses YES / NO *					
	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU)	30		30		
Number of hours of total student workload (CNPS)	60		90		
Form of crediting	Examination / crediting with grade*	Examination / crediting with grade*	Examination / crediting with grade*	Examination / crediting with grade*	Examination / crediting with grade*
For group of courses mark (X) final course	X				
Number of ECTS points	2		3		
including number of ECTS points for practical (P) classes			2		
including number of ECTS points for direct teacher-student contact (BK) classes	1,2		1,8		

*delete as applicable

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Operating systems
2. Computer networks
3. Computer architecture

SUBJECT OBJECTIVES

- C1 Identify and analyze basic security problems of computer networks
- C2 Demonstrate knowledge of the use, care, and maintenance of computer network security related tools
- C3 Demonstrate the ability to communicate effectively in solving common IT security problems

SUBJECT EDUCATIONAL EFFECTS

relating to knowledge:

PEK_W01 Student has a knowledge about computer network security threats

PEK_W02 Student has a knowledge about general requirements related to network protection

relating to skills:

PEK_U01 Student can identify the common network security problems

PEK_U02 Student can select and use some network security tools

relating to social competences:

PEK_K01 Student understands the important societal implications of computer network security

PEK_K02 Student can cooperate to get the security related information and to improve network security level of the computer system

PROGRAMME CONTENT

Form of classes - lecture		Number of hours
Lec 1	Introduction to Network Security	2
Lec 2	Building Security into the Network	2
Lec 3	Network Traffic Monitoring and Filtering	2
Lec 4	Network Protocols and Vulnerabilities	2
Lec 5	IP Security	2
Lec 6	Transport-Level Security	2
Lec 7	Authentication Applications	2
Lec 8	Electronic Mail Security	2
Lec 9	Malware and Network Attacks	2
Lec 10	Intruders and Intrusion Detection	2
Lec 11	Honeypots and Honeynets	2
Lec 12	Anomaly Detection	2
Lec 13	Mobile Systems Security	2
Lec 14	Privacy and Anonymity in Computer Networks	2
Lec 15	Final Exam	2
	Total hours	30
Form of classes - class		Number of hours
Cl 1		
Cl 2		
Cl 3		
Cl 4		
..		
	Total hours	
Form of classes – laboratory		Number of hours
Lab 1	Setting Up Virtual Test Lab Environments	2
Lab 2	Packet Sniffing	2
Lab 3	Password Cracking	2

Lab 4	Firewalls	2
Lab 5	E-mail and Electronic Documents Exchange Security	2
Lab 6	Penetration Testing Tools	2
Lab 7	Advanced Reconnaissance Techniques	2
Lab 8	Web Application Exploitation	2
Lab 9	Exploits and Client-Side Attacks	2
Lab 10	Post-Exploitation	2
Lab 11	Bypassing Firewalls	2
Lab 12	Communication Security	2
Lab 13	Intrusion Detection Systems	2
Lab 14	Honeypots and Honeynets	2
Lab 15	Anonymity in Network Communication	2
	Total hours	30

Form of classes - project		Number of hours
Proj 1		
Proj 2		
Proj 3		
Proj 4		
...		
	Total hours	

Form of classes - seminar		Number of hours
Sem 1		
Sem 2		
Sem 3		
...		
	Total hours	

TEACHING TOOLS USED	
N1. Lecture N2. Students' own work. N3. Lab exercises N4. Individual consultations with teacher	

EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT

Evaluation (F – forming (during semester), P – concluding (at semester end))	Educational effect number	Way of evaluating educational effect achievement
F1	PEK_W01- PEK_W02, PEK_U01- PEK_U03, PEK_K01- PEK_K02,	Lab reports.
P PEK_W01- PEK_W02, Final Exam		

PRIMARY AND SECONDARY LITERATURE
<u>PRIMARY LITERATURE:</u> [1] Ch.McNab, Network Security Assessment: Know Your Network, 2007 [2] W.Stallings, Network Security Essentials, 2010 [3] L.Allen Advanced Penetration Testing for Highly-Secured Environments: The Ultimate Security Guide, 2012 <u>SECONDARY LITERATURE:</u> [1] W.Stallings, Cryptography and Network Security: Principles and Practice,2010 [2] N.Dhanjani, Network Security Tools: Writing, Hacking, and Modifying Security Tools,2005 [3] M.Zalewski, Silence on the Wire: A Field Guide to Passive Reconnaissance and Indirect Attacks,2012
SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)
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MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR
SUBJECT
Security in Computer Network
AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY
Computer Science
AND SPECIALIZATION

Subject educational effect	Correlation between subject educational effect and educational effects defined for main field of study and specialization (if applicable)**	Subject objectives***	Programme content***	Teaching tool number***
PEK_W01 (knowledge)	K1INF_W13	C1	Lec2-Lec13	N1,N4
PEK_W02	K1INF_W13	C1	Lec1,LEC14	N1,N4
PEK_U01 (skills)	K1INF_U09	C2	Lec1-Lec14 Lab2-Lab15	N2-N4
PEK_U02	K1INF_U03, K1INF_U09	C2,C3	Lec1-Lec14 Lab2,Lab2,Lab4,Lab7,Lab8	N2-N4
PEK_K01 (competences)	K1INF_U09, K1INF_U14	C2,C3	Lec1-Lec14 Lab3,Lab5,Lab7,Lab11,Lab15	N2-N4
PEK_K02	K1INF_U09	C1,C3	Lec1,Lab1-Lab15	N2,N4
	K1INF_W13	C1,C2,C3	Lec14,Lab1-Lab15	N2,N4

** - enter symbols for main-field-of-study/specialization educational effects

*** - from table above