STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Security in Communication Networks**		Code **1010802121010822890**
Field of study **Electronics and Telecommunications**	Profile of study (general academic, practical) **general academic**	Year /Semester **1 / 2**
Elective path/specialty **Information and Communication**	Subject offered in: **Polish / English**	Course (compulsory, elective) **elective**
Cycle of study: **Second-cycle studies**	Form of study (full-time,part-time) **full-time**	

No. of hours					No. of credits
Lecture: **2**	Classes: **-**	Laboratory: **2**	Project/seminars:	**-**	**5**

Status of the course in the study program (Basic, major, other) **major**	(university-wide, from another field) **from field**

Education areas and fields of science and art
 	
technical sciences
      Technical sciences
	ECTS distribution (number and **%)**
	
	100 5%
	        100 5%

Responsible for subject / lecturer: dr inż. Sławomir Hanczewski email: slawomir.hanczewski@et.put.poznan.pl tel. +48 61 665 39 46 Wydział Elektroniki i Telekomunikacji ul. Piotrowo 3A 60-965 Poznań	Responsible for subject / lecturer: dr inż. Sławomir Hanczewski email: slawomir.hanczewski@et.put.poznan.pl tel. +48 61 665 39 46 Faculty of Electronics and Telecommunications ul. Piotrowo 3A 60-965 Poznań

Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	K1_W22 (in part) The student knows the basic concepts underpinning present day telecommunications networks and understands the functional meaning of these terms. Student has the ordered basic knowledge in the structure, operation and standards in different types of computer and telecommunications networks. Student knows the fundamentals of traffic engineering, queueing theory, services, devices, traffic management systems, network protocols and telecommunications techniques that are used in computer and telecommunications networks.
2	**Skills**	K1_U25 The student has the ability to configure devices and run a local computer network. Student can select and implement appropriate algorithms for a given network optimization problem to be solved. Student can make use of applications that analyze traffic flow in LAN networks, as well as applications that enable safe data transfer.
3	**Social competencies**	K1_K03 The student develops a sense of responsibility for electronic and telecommunications systems of his or her own design, and is aware of potential threats of their reasonably anticipated improper use for other people or society at large.

Assumptions and objectives of the course:

To develop theoretical and practical skills in issues related to constructing safe computer (telecommunications) networks and to conscious and safe use of resources available on the internet.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Student has the appropriate knowledge of security issues in computer networks - [K2_W12]

Skills:

1. Student is able to configure network devices and software in such a way as to secure safe data transfer. Student can make use of the resources available on the internet responsibly and in full awareness of the potential consequences - [K2_U14]

Social competencies:

1. Student is constantly working on updating his or her knowledge and skills in issues related to network security - [K2_K04]

2. Student is professionally oriented toward solving problems related to network safety issues - [K2_K05]

Assessment methods of study outcomes

Lecture ? oral exam
Laboratory classes ? knowledge check (entrance test), practical skills check (network security issues)

Course description

1. Analysis of web threats stemming from the Internet
2. Hardware and software network firewalls
3. Security of network devices
4. Intrusion Detection Systems and Intrusion Prevention Systems (IDS/IPS)
5. Introduction to cryptography
6. Network protocols for safe data transfer
7. VPN (Virtual Private Networks)
8. Safety tests in computer systems

Basic bibliography:

1. Network Security: Private Communication in a Public World (2nd Edition) Charlie Kaufman, Radia Perlman, Mike Speciner

2. Implementing Cisco IOS Network Security (IINS): (CCNA Security exam 640-553) (Authorized Self-Study Guide) Catherine Paquet , Ciscopress.com, 2009

3. CCNA Security Official Exam Certification Guide, Michael Watkins, Kevin Wallace - Cisco Press 2008

Additional bibliography:

1. A Guide to Computer Network Security, Joseph Migga Kizza, Springer 2009

Result of average student's workload

Activity	Time (working hours)
1. participation in lectures and laboratories	60
2. Preparation for laboratories	20
3. Writing the reports	20
4. Preparation for the exam	20
5. Examination	2
6. Consulting with teachers	3

Student's workload

Source of workload	hours	ECTS
Total workload	125	5
Contact hours	65	2
Practical activities	50	2