STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Computer network devices**		Code **1010821161010820986**
Field of study **Electronics and Telecommunications**	Profile of study (general academic, practical) **general academic**	Year /Semester **3 / 6**
Elective path/specialty **Computer Networks and Internet**	Subject offered in: **Polish**	Course (compulsory, elective) **elective**
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **full-time**	
No. of hours Lecture: **2** Classes: **1** Laboratory: **-** Project/seminars: **-**		No. of credits **3**
Status of the course in the study program (Basic, major, other) **other**	(university-wide, from another field) **from field**	
Education areas and fields of science and art **technical sciences** **Technical sciences**		ECTS distribution (number and %) **3 100%** **3 100%**

Responsible for subject / lecturer:

dr inż. Mariusz Żal
email: mariusz.zal@put.poznan.pl
tel. +48 61 665 3926
Wydział Elektroniki i Telekomunikacji
ul. Piotrowo 3A 60-965 Poznań

Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Has a basic knowledge of computer networks; Has a basic knowledge of telecommunicaton networks.
2	**Skills**	Is able to find information in literature, as well as other reference sources; is able to integrate and interpret obtained information, draws conclusions and justifies opinions
3	**Social competencies**	Student understands a necessity to acquire a new knowledge and skills stemming from a chosen field of studies.

Assumptions and objectives of the course:

To provide students with theoretical and practical knowledge about computer network devices. To prepare students to design and configure optical networks.

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

Knowledge:

1. Knows the principles of construction of computer programs; has knowledge from the area of computing science; knows the syntax of C# and Java for PC and mobile devices. - [K1_W09]
2. Has a systematic knowledge of computer architectures. Knows mobile device configuration profiles and programming techniques. - [K1_W13]
3. Has a basic knowledge of network device archtecture, standards, network protocols and construction. Knows network layer, transport layer and application layer protocols. - [K1_W22]

Skills:

1. Is able to find information in literature, as well as other reference sources - [K1_U01]
2. Is able to use future SQL extensions and normal form for solving data base optimization problem. - [K1_U05]
3. Is able to write and run a simple network card driver. - [K1_U15]
4. Is able to determine the best of network device configuration according to given specification. - [K1_U23]
5. Is able to configure network device in local area network. - [K1_U25]

Social competencies:

1. Demonstrates responsibility for designed software. Is aware of the hazards they pose for individuals and communities if they are improperly designed. - [K1_K03]
2. . A student is able to formulate opinions concerning challenges of contemporary computer network devices; A student is aware of the impact of computer network devices on the information society - [K1_K04]

Assessment methods of study outcomes

Forming assessment:

Lectures: Written exam; exam is passed when student receives at least 50% points. Exam can be taken after the completion of excercises.

Exercices:

- evaluation and assessment of knowledge increment that need to be effective in solving problems covering all tasks within a given subject area;

- continuous assessment during daily classroom practice - rewarding knowledge increment in skills in management of using rules and methods learnt in class.

Course description

IP router architectures; Packet path determination; Packet switching function; Switching network architecture; Buffering strategy; Optical router architectures; Photonic buffers; CAM, TCAM, RCAM memory; Network switch architectures, Power supply over networks ? PoE, Digital Subscriber Lines ? standards, networks, devices, protocols; ADSL, VDSL, HDSL; EPON ? Ethernet Passive Optical Networks, Drivers for network interface card in Linux, Network traffic analyze, Network mechanisms (three way handshaking, NAT, DHCP, Porxy-arp); Network filters, Configuration of network devices ? switches, routers, servers. Necessary configuration parameters.

Basic bibliography:

1. Wojciech Kabaciński, Mariusz Żal, Sieci telekomunikacyjne, WKŁ 2008
2. Jonathan Corbet, Alessandro Rubini, and Greg Kroah-Hartman, Linux Device Drivers, O?Reilly 2005

Additional bibliography:

1. Ran Giladi, Network Processors, Morgan Kaufmann 2008,
2. Ethernet Passive Optical Networks Glen Kramer, McGraw-Hill 2005

Result of average student's workload

Activity	Time (working hours)
1. Lectures	30
2. Laboratories	15
3. Preparation for laboratories	20
4. Preparation for exam	10
5. Preparation for test	5
6. Consultation	5

Student's workload

Source of workload	hours	ECTS
Total workload	90	3
Contact hours	50	2
Practical activities	35	1