Zał. nr 4 do ZW 64/2012

FACULTY W-8 / DEPARTMENT……

SUBJECT CARD

Name in Polish ……Technologie internetowe……
Name in English ……Internet Technologies……..
Main field of study (if applicable): …….
Specialization (if applicable): ……..
Level and form of studies: 1st/ ~~2nd~~* level, full-time / ~~part-time~~*
Kind of subject: obligatory / optional / university-wide*
Subject code INZ0284Wl
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		60		
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		2		
including number of ECTS points for practical (P) classes			2		
including number of ECTS points for direct teacher-student contact (BK) classes	1,2		1,2		

*delete as applicable

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Basic knowledge of local area networks.
2. Familiarity with Linux and Windows network operating systems.

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SUBJECT OBJECTIVES

C1 Gaining knowledge of the organization and architecture of the Internet.
C2 Obtaining detailed knowledge of the implementation of the basic services on the Internet.
C3 Obtaining knowledge of modern Internet technologies.
C4 Gaining practical skills to configure specialized software which control the basic operation of the Internet.
C5 Obtaining practical skills to use and set up modern services of Internet.

SUBJECT EDUCATIONAL EFFECTS

relating to knowledge:

PEK_W01 Lists, defines and characterizes the essential elements of the Internet architecture and explains their functions.

PEK_W02 Knows and describes the mechanisms, protocols and algorithms used in the implementation of basic services of the Internet.

PEK_W03 Describes the operation and evaluates properties of modern Internet technologies.

relating to skills:

PEK_U01 Is able to select and configure the software which support the basic operation of Internet infrastructure services.

PEK_U02 Is able to identify infrastructure requirements and propose appropriate solutions for the implementation of advanced modern Internet services.

PROGRAMME CONTENT

Form of classes - lecture		**Number of hours**
Lec 1	Introduction. The history of development, trends and the current state of the Internet.	2
Lec 2	Internet architecture fundamentals. Internet Protocols.	2
Lec 3	The logical and physical structure of the Internet. Autonomous systems.	2
Lec 4	IPv4 and TCP protocols.	2
Lec 5	DNS naming system.	2
Lec 6	Web systems overview. HTTP protocol.	2
Lec 7	Web systems – basic architecture components and mechanisms.	2
Lec 8	IP routing – issues and protocols – part 1.	2
Lec 9	IP routing – issues and protocols – part 2.	2
Lec 10	IPv6 protocol.	2
Lec 11	Mobile Internet.	2
Lec 12	IP Multicast. Streaming. Multimedia services.	2
Lec 13	Limited and overlay network - Intranets, P2P networks.	2
Lec 14	Limited and overlay networks - content delivery networks (CDN).	2
Lec 15	Passing test.	2
	Total hours	30

Form of classes - class		**Number of hours**
..		
	Total hours	

Form of classes - laboratory		**Number of hours**
Lab 1	Discussion of the organization of classes and exercise program. Health and Safety Training. Presentation of teaching tools.	2

Lab 2	Basic tools of testing internetworks and Internet services.	2
Lab 3	Introduction to router software.	2
Lab 4	Configuring the router. Configuring static routes.	2
Lab 5	Distance vector routing protocols.	2
Lab 6	Classless routing configuration.	2
Lab 7	EIGRP protocol.	2
Lab 8	Configuring OSPF in a single area.	2
Lab 9	Setting up and testing of the network at the autonomous systems level – part 1.	2
Lab 10	Setting up and testing of the network at the autonomous systems level – part 2.	2
Lab 11	Configuration of IPv6 network.	2
Lab 12	Configuration IPv4-to-IPv6 transition mechanisms.	2
Lab 13	The IPv6 routing.	2
Lab 14	Configuration of IP multicast.	2
Lab 15	Summarization and final assessment of classes.	2
	Total hours	30

Form of classes - project		**Number of hours**
…		
	Total hours	

Form of classes - seminar		**Number of hours**
…		
	Total hours	

TEACHING TOOLS USED

N1. Lecture supported by multimedia presentations.
N2. Lab manuals (own and Cisco CCNA Student Labs).
N3. Network equipment and specialized software of selected Internet technologies.
N4. The e-learning system for publication of teaching materials, exercises, announcements and collection and evaluation of student work, as well as for testing of acquired knowledge.

EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT

Evaluation (F – forming (during semester), C – concluding (at semester end)	Educational effect number	Way of evaluating educational effect achievement
F1 – Lab3	PEK_U01	Assessment of the completeness and quality of the laboratory exercise. Scoring 0÷10.
F2 – Lab4	PEK_U01	Assessment of the completeness and quality of the laboratory exercise. Scoring 0÷10.
F3 – Lab5	PEK_U01	Assessment of the completeness and quality of the laboratory exercise. Scoring 0÷10.
F4 – Lab6	PEK_U01	Assessment of the completeness and quality of the laboratory exercise. Scoring 0÷10.
F5 – Lab7	PEK_U01	Assessment of the completeness and quality of the laboratory exercise. Scoring 0÷10.
F6 – Lab8	PEK_U01	Assessment of the completeness and quality of the laboratory exercise. Scoring 0÷10.
F7 – Lab9	PEK_U01	Assessment of the completeness and quality of the laboratory exercise. Scoring 0÷10.
F8 – Lab10	PEK_U01	Assessment of the completeness and quality of the laboratory exercise. Scoring 0÷10.
F9 – Lab11	PEK_U02	Assessment of the completeness and quality of the laboratory exercise. Scoring 0÷10.
F10 – Lab12	PEK_U02	Assessment of the completeness and quality of the laboratory exercise. Scoring 0÷10.
F11 – Lab13	PEK_U02	Assessment of the completeness and quality of the laboratory exercise. Scoring 0÷10.
F12 – Lab14	PEK_U02	Assessment of the completeness and quality of the laboratory exercise. Scoring 0÷10.
C1 – Lab15	PEK_U01 PEK_U02	Scoring. Total points of F1 to F12. Positive evaluation when obtaining at least 50% of the maximum possible total score.
C2 – Lec15	PEK_W01 PEK_W02 PEK_W03	Written or e-lerning electronic test. Scoring. Positive evaluation when obtaining at least 50% of the maximum possible score.

C - the final evaluation of the course.
The rate determined on a weighted average of the ratings points C1 and C2 according to the formula:
C=0,5 * C1 + 0,5 * C2.
The final evaluation on the basis of C according to the formula:
- less than 50% of points – 2.0 (insufficient)
(50%, 60%) – 3.0 (sufficient)
[60%, 70%) – 3.5 (sufficient+)
[70%, 80%) – 4.0 (good)
[80%, 90%) – 4.5 (good+)
[90%, 100%) – 5.0 (very good)
100% – 5.5 (excellent).

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] IBM Redbooks: TCP/IP Tutorial and Technical Overview, 2006.
[2] T. Lammle: CCNA: Cisco Certified Network Associate – Study Guide, (Exam 640-802), Wiley Publishing, 2007
[3] T. Lammle, S. Odom, K. Wallace: CCNP: Cisco Certified Network Professional – Study Guide, Sybex Inc., 2001
[4] B. Krishnamurthy, J. Rexford, HTTP 1.1 Protocol and Practice, Addison-Wesley, 2001
[5] R. Steinmetz, K. Wehrle: Peer-to-Peer Systems and Applications, LNCS 3485, Springer, 2005.
[6] R. Buyya, M. Pathan, A. Vakali: Content Delivery Networks,. Springer, 2008.
[7] RFC documents.

SECONDARY LITERATURE:

[1] J. Doyle, J. Carroll: Routing TCP/IP, Cisco Press, 2005.
[2] A. S. Tanenbaum: Computer networks, Pearson Education, 2011.
[3] J. Buford, H. Yu, E.K. Lua: P2P Networking and Applications, Morgan Kaufman 2009
[4] D. Menascé, V. Almeida, Capacity Planning for Web Services: metrics, models, and methods, Prentice Hall, 2002

SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)

Mariusz Fraś, mariusz.fras@pwr.wroc.pl

MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT

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AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY

……..

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_W14	C1	Lec1,…,Lec15	N1, N4
PEK_W02	K1INF_W14	C2	Lec1,…,Lec9, Lec15	N1, N4
PEK_W03	K1INF_W14	C3	Lec10,…,Lec15	N1, N4
PEK_U01 (skills)	K1INF_U05, K1INF_U06, K1INF_U07, K1INF_U14	C4	Lab1,…,Lab10	N2, N3, N4
PEK_U02	K1INF_U05, K1INF_U06, K1INF_U07, K1INF_U14	C5	Lab11,…,Lab15	N2, N3, N4

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

*** - from table above