![Kapitał Ludzki - Narodowa Strategia Spójności] ![Politechnika Świętokrzyska] **UNIA EUROPEJSKA** EUROPEJSKI FUNDUSZ SPOŁECZNY

Projekt współfinansowany ze środków Unii Europejskiej w ramach Europejskiego Funduszu Społecznego

MODULE DESCRIPTION

Module code	
Module name	**Sieci komputerowe**
Module name in English	**Computer Networks**
Valid from academic year	**2012/2013**

MODULE PLACEMENT IN THE SYLLABUS

Subject	**Computer Science**
Level of education	**1st degree** *(1st degree / 2nd degree)*
Studies profile	**General** *(general / practical)*
Form and method of conducting classes	**Full-time** *(full-time / part-time)*
Specialisation	
Unit conducting the module	**The Department of Computer Science**
Module co-ordinator	**Robert Tomaszewski, PhD, Eng.**
Approved by:	

MODULE OVERVIEW

Type of subject/group of subjects	**Major** *(basic / major / specialist subject / conjoint / other HES)*
Module status	**Compulsory** *(compulsory / non-compulsory)*
Language of conducting classes	**Polish**
Module placement in the syllabus - semester	**4th semester**
Subject realisation in the academic year	**Summer semester** *(winter / summer)*
Initial requirements	**Programming in the C Language 1 and 2** *(module codes / module names)*
Examination	**Yes** *(yes / no)*
Number of ECTS credit points	**6**

Method of conducting classes	Lecture	Classes	Laboratory	Project	Other
Per semester	**30**		**30**		

TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS

Biuro Projektu
al. Tysiąclecia Państwa Polskiego 7
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Projekt „Politechnika Świętokrzyska – uczelnia na miarę XXI w.''
Program Operacyjny Kapitał Ludzki Priorytet IV Działanie 4.1, Poddziałanie 4.1.1
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KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI

Politechnika Świętokrzyska

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Module target	The aim of the module is to familiarise students with the structure and operation of computer networks. Another aim is to learn technologies, tools, as well as selected protocols placed on particular layers of ISO/OSI and DoD models. Finally, the aims of the module include the abilities of creating software utilising network protocols as well as designing a student's own application protocols.

Effect symbol	Teaching results	Teaching methods (l/c/l/p/other)	Reference to subject effects	Reference to effects of a field of study
W_01	Knowledge of types, the principles of constructing, configuring, diagnosing, and operating of computer networks.	l/l	K_W10	T1A_W04 T1A_W07
W_02	Knowledge of the role of tier ISO/OSI as well as DoD models, the functions of particular tiers (together with allocating sample technologies, tools, and protocols).	l	K_W10	T1A_W04 T1A_W07
W_03	Detailed knowledge as regards the operation of the most important technologies and network protocols.	l	K_W10 K_W18	T1A_W04 T1A_W05 T1A_W07
W_04	Basic knowledge as regards computer network safety as well as the directions of development of network technologies.	l	K_W10 K_W18	T1A_W04 T1A_W05 T1A_W07
U_01	The ability of creating software which utilises the existing API as well as network protocols.	l/l	K_W10 K_U01 K_U06	T1A_W04 T1A_W07 T1A_U01 T1A_U07
U_02	The ability of implementing a student's own application protocols.	l	K_U01 K_U05 K_U06	T1A_U01 T1A_U05 T1A_U06 T1A_U07
K_01	Teamwork.	l	K_U02 K_K03	T1A_U02 T1A_K03 T1A_K04

Teaching contents:

Teaching contents as regards lectures

Lecture number	Teaching contents	Reference to teaching results for a module
1	The genesis and notion of a computer network, physical/logical topology as well as host/node.	W_01
2	Discussing ISO/OSI as well as DoD network models.	W_01 W_02
3	A physical layer: transmission media and device connection methods, signal encryption, and IEEE 802 norms.	W_02 W_03
4-6	A data link layer: Ethernet, Fast Ethernet, Gigabit Ethernet, and Token Ring.	W_02 W_03 W_04
7-8	Network layers: IP4 and IP6 protocol, Internet Control Message Protocol (ICMP). RFC documents.	W_02 W_03 W_04
9	A transport layer: Transmission Control Protocol (TCP)/ User Datagram Protocol (UDP).	W_02 W_03

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10	A program interface: NetBIOS and BSD Sockets (WinSock).	W_03 U_01
11	Dynamic Host Configuration Protocol (DHCP).	W_03 U_01
12	Application protocols: POP3 and SMTP. Standard MIME.	W_03 U_01
13	Application File Transport Protocol (FTP).	W_03 U_01
14	Application Hypertext Transfer Protocol (HTTP).	W_03 U_01
15	Cryptography and certification in computer networks, Secure Sockets Layer (SSL) protocol.	W_03 W_04

Teaching contents as regards laboratory classes

Laboratory class number	Teaching contents	Reference to teaching results for a module
1	Configuration, diagnostics, and information about network hosts – useful commands of the operating system.	W_01 U_01
2	Programming with NetBIOS – program realisation for node initiation/reset, adding and deleting host name.	U_01
3	Programming and applying the NetBIOS protocol – program realisation for sending as well as receiving broadcast-type datagrams.	U_01
4	Programming and applying the NetBIOS protocol – program realisation for sending as well as receiving unicast- and multicast-type datagrams.	U_01
5	Programming and applying the NetBIOS protocol – program realisation for sending as well as receiving data with the use of a connection (session).	U_01
6	Programming and applying the WinSock protocol – program realisation for initiating the protocol as well as downloading basic information about the host.	U_01
7	Programming and applying the WinSock protocol – program realisation for connectionless communication (the UDP protocol).	U_01
8	Programming with the WinSock protocol – program realisation for connection-based communication (the TCP protocol).	U_01
9-14	Allocating and completing a project assignment (in teams of 2) based on the knowledge acquired during laboratory classes No 1-8.	U_01 U_02 K_01
15	Presenting the assignment prepared during laboratory classes No 9-14.	U_01 U_02 K_01

The methods of assessing teaching results

Effect symbol	Methods of assessing teaching results *(assessment method, including skills – reference to a particular project, laboratory assignments, etc.)*
W_01	An examination and a test (on laboratory classes No 1).
W_02	An examination.
W_03	An examination.
W_04	An examination.
U_01	A test and assignment evaluation concerning laboratory classes No 9-14.
U_02	Assignment evaluation concerning laboratory classes No 9-14.

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K_01	Assignment evaluation concerning laboratory classes No 9-14.

STUDENT'S INPUT

ECTS credit points	
Type of student's activity	**Student's workload**
Participation in lectures	**30**
Participation in classes	
Participation in laboratories	**30**
Participation in tutorials (2-3 times per semester)	**3**
Participation in project classes	
Project tutorials	
Participation in an examination	**2**
Number of hours requiring a lecturer's assistance	**65** *(sum)*
Number of ECTS credit points which are allocated for assisted work *(1 ECTS credit point=25-30 hours)*	**3**
Unassisted study of lecture subjects	**15**
Unassisted preparation for classes	
Unassisted preparation for tests	
Unassisted preparation for laboratories	**10**
Preparing reports	
Preparing for a final laboratory test	**5**
Preparing a project or documentation	**10**
Preparing for an examination	**30**
Preparing questionnaires	
Number of hours of a student's unassisted work	**70** *(sum)*
Number of ECTS credit points which a student receives for unassisted work *(1 ECTS credit point=25-30 hours)*	**3**
Total number of hours of a student's work	**135**
ECTS credit points per module *1 ECTS credit point=25-30 hours*	**6**
Work input connected with practical classes *Total number of hours connected with practical classes*	**50**
Number of ECTS credit points which a student receives for practical classes *(1 ECTS credit point=25-30 hours)*	**2**

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