Załącznik nr 9
do Zarządzenia Rektora PŚk Nr 35/19
w brzmieniu ustalonym Zarządzeniem Nr 12/22

COURSE DESCRIPTION

Course code	full-time studies	**X**
	part-time-studies	**X**
Course name	**Aplikacje sieciowe**	
Course name in English	**Network applications**	
Valid from academic year	**2022/23**	

PLACEMENT IN THE TEACHING PROGRAM

Field of study	**Computer Science**
Level of education	**1st degree**
Studies profile	**General**
Form and method of teaching classes	**Full-time and part-time studies**
Specialization	**All specializations**
Organizational unit responsible for the course	**Department of Information Systems**
Course coordinator	**Jacek Wilk-Jakubowski**
Approved by	**Dean of the Faculty of Electrical Engineering, Automatic Control and Computer Science Roman Deniziak, KUT prof., DSc, PhD**

GENERAL CHARACTERISTIC OF THE COURSE

Course affiliation		**Directional course**
Course status		**Elective**
Language		**English**
Semester	full-time studies	**Semester VI**
	part-time-studies	**Semester VII**
Requirements		**Fundamentals of Programming 1, 2 Introduction to Networks Internet Applications**
Exam (YES/NO)		**NO**
ECTS		**4**

Course form		**lecture**	**classes**	**laboratory**	**project**	**other**
Hours per semester	full-time studies	**30**			**30**	
	part-time-studies	**18**			**18**	

LEARNING RESULTS

Category	Result Symbol	Learning Results	References to the field of study results
Knowledge	W01	Student has advanced knowledge and understanding of local and wide area networks, active and passive network components, reference models, basic communication protocols and security aspects of computer networks.	INF_W15
	W02	Student knows and understands the principles of network programming in the field of network communication elements, implementation of network application tests and selected frameworks and network services.	INF_W31
Skills	U01	Student is able to perform basic computer network configuration and diagnostics, design his own application protocols and build simple Internet applications using popular protocols.	INF_U15
	U02	Student is able to use the programming languages to implement network services and network application tests.	INF_U31
Social competence	K01	Student is ready to recognize the significance of knowledge in solving engineering problems and the need for its continuous expansion to improve professional, personal and social competences.	INF_K1
	K02	Student is ready to critically evaluate his/her qualifications and understands the potential consequences of decisions/actions taken on the basis of incomplete knowledge/poor skills.	INF_K2

COURSE CONTENT

Course Form	Content
lecture	1, 2. Introduction to network applications. Historical outline and trend analysis of network applications development on the selected examples. 3-6. Configuration, diagnostics and information about network hosts. Command parameters analysis. Intra-network communication. Transmission types analysis. 7, 8. Overview of the BSD Sockets (WinSock) interface. Review of architecture and capabilities available to developers using sockets and the BSD Sockets (WinSock) interface. 9. Characteristics of sockets including communication domain and their types (streaming, datagram, basic). 10, 11. Programming with the use of the WinSock protocol – implementation of programs for protocol initialization and host information retrieval. 12, 13. Programming with the use of the WinSock protocol – implementation of programs for connectionless transmission (UDP protocol). 14, 15. Programming with the use of the WinSock protocol – implementation of programs for connection-oriented transmission (TCP protocol).
project	To assign a project task to be completed in groups of 3-5 (each person on the project group has an assigned role) and to complete it based on the knowledge acquired in lecture classes. As part of the project students should: - write an application according to the guidelines, - check the correctness of its operation, - create technical documentation of the application, - present the finished application and its technical documentation for the defense.

LEARNING RESULTS VERIFICATION METHODS

Result Symbol	Learning results verification methods					
	Oral Exam	Written Exam	Midterm	Project	Report	Other
W01			X			
W02			X			
U01				X	X	
U02				X	X	
K01				X	X	
K02				X	X	

ASSESSMENT FORMS AND CRITERIA

Course Form	Assessment Form	Assessment Criteria
lecture	Passing grade	Obtain min. 50% of the points in the final written/oral colloquium.
project	Passing grade	Defense of the project (personal demonstration of the program with the ability to explain it and presentation of technical documentation) for a positive grade.

STUDENT'S VOLUME OF WORK

ECTS Balance												
No.	Activity Type	Student Involvement										Unit
		full-time studies					part-time-studies					
1.	Participation in classes according to the schedule	Lec	C	Lab	P	S	Lec	C	Lab	P	S	h
		30	-	-	30	-	18	-	-	18	-	
2.	Other (consultations, exams)	2	-	-	2		2	-	-	2	-	h
3.	**Total with the direct assist of an academic teacher**	**64**					**40**					h
4.	**Number of ECTS, that students obtains with the direct assist of an academic teacher**	**2,56**					**1,6**					ECTS
5.	**Hours of unassisted student work**	**36**					**60**					h
6.	**Number of ECTS that student obtains working unassisted**	**1,44**					**2,4**					ECTS
7.	**Practical classes volume of work**	**30**					**18**					h
8.	**Number of ECTS obtained by student at practical classes**	**1,88**					**1,80**					ECTS
9.	**Total student's volume of work expressed in hours**	**100**					**100**					h
10.	**ECTS**	**4**										ECTS

BIBLIOGRAPHY

1. https://msdn.microsoft.com/pl-pl/library/windows/desktop/ms740673(v=vs.85).aspx
2. https://docs.microsoft.com/pl-pl/windows/win32/winsock/about-winsock
3. https://docs.microsoft.com/en-us/windows/win32/api/winsock/nf-winsock-wsastartup
4. Normy IEEE, dokumenty RFC