



Subject card

Subject name and code	Computer Networks and Internet Technologies, PG_00038089						
Field of study	Automation, Robotics and Control Systems						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2022/2023		
Education level	first-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Tomasz Rutkowski					
	Teachers	dr inż. Tomasz Rutkowski mgr inż. Tomasz Karla dr inż. Bartosz Puchalski					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours		Self-study		SUM
	Number of study hours	30	3.0		42.0		75
Subject objectives	The aim of the course is to familiarize students with the basic issues related to computer networks and internet technologies						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W06] knows the structure of computers and microprocessors and the tasks of operating systems, has basic knowledge of the basics of computer software, drivers, microprocessor technology, design of simple algorithms and the operation of information networks						
	K6_U05						
	[K6_W09] has knowledge in the field of security of ICT systems and networks						
	K6_W09						
	K6_K02						
	[K6_U05] can use analytical and simulation methods to solve tasks in the field of automation and robotics and use various techniques to carry out engineering tasks related to automation and robotics devices and systems						
	[K6_K02] can work in a group taking on different roles in it						
K6_W06							

Subject contents	<p>LECTURE: Computer networks history and computer networking fundamentals. Types of computers networks (LAN, WAN, MAN). Types of LAN network topology. Transmissions media types and network cabling types. ISO/OSI reference model. Ethernet network. Role and functions of the network accessories. TCP/IP protocols family. IP addressing, static and dynamic addresses. Role and functions of the DNS and DHCP servers. Wireless network WLAN (WiFi). Application layer selected protocols (including: HTTP, FTP, SMTP, POP, SSL, SSH). Networking and network security. Client-server and peer-to-peer technologies. Introduction to (X)HTML, CSS, PHP and SQL languages. The basics of database administration (MySQL).</p> <p>LABORATORY EXERCISES: Wire and diagnosis of Ethernet cable basic types. The basic throughput testing methods for various transmissions media types. Creating, configuration and testing of small heterogeneous computer network. Domain owner identification. Datagram s route identification. The basics of IP network traffic analysis. Create simple connected web pages with (X)HTML. Cascading style sheets CSS utilization in the project. Dynamic web pages construction with PHP and MySQL database.</p>														
Prerequisites and co-requisites	No requirements														
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 546 794 568">Subject passing criteria</th> <th data-bbox="801 546 1139 568">Passing threshold</th> <th data-bbox="1145 546 1482 568">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 577 794 629">Reports and tests during laboratory exercises</td> <td data-bbox="801 577 1139 629">50.0%</td> <td data-bbox="1145 577 1482 629">15.0%</td> </tr> <tr> <td data-bbox="456 638 794 660">Lecture test</td> <td data-bbox="801 638 1139 660">50.0%</td> <td data-bbox="1145 638 1482 660">50.0%</td> </tr> <tr> <td data-bbox="456 669 794 698">Laboratory project</td> <td data-bbox="801 669 1139 698">50.0%</td> <td data-bbox="1145 669 1482 698">35.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Reports and tests during laboratory exercises	50.0%	15.0%	Lecture test	50.0%	50.0%	Laboratory project	50.0%	35.0%
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Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> [1] List and describe basics elements of computer networks. [2] Describe advantages and disadvantages of various transmissions media types. [3] Describe role and functions of particular layers in the ISO/OSI reference model. [4] Explain functions of the ARP, IP, TCP and UDP protocols. [5] List and describe basic protocols of the TCP/IP model application layer. 														
Work placement	Not applicable														

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