



## 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 Karła 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						
	SIECI KOMPUTEROWE I TECHNOLOGIE INTERNETOWE [2022/23] - Moodle ID: 28447 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=28447">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=28447</a>						
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="456 542 794 568">Subject passing criteria</th> <th data-bbox="801 542 1139 568">Passing threshold</th> <th data-bbox="1145 542 1482 568">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 573 794 627">Reports and tests during laboratory exercises</td> <td data-bbox="801 573 1139 627">50.0%</td> <td data-bbox="1145 573 1482 627">15.0%</td> </tr> <tr> <td data-bbox="456 631 794 658">Lecture test</td> <td data-bbox="801 631 1139 658">50.0%</td> <td data-bbox="1145 631 1482 658">50.0%</td> </tr> <tr> <td data-bbox="456 663 794 694">Laboratory project</td> <td data-bbox="801 663 1139 694">50.0%</td> <td data-bbox="1145 663 1482 694">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%
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%													
Recommended reading	<table border="1"> <tbody> <tr> <td data-bbox="456 712 794 990">Basic literature</td> <td colspan="2" data-bbox="801 712 1482 990"> <ol style="list-style-type: none"> <li>1. Douglas E. C.: Sieci komputerowe i intersieci. Warszawa: WNT, 2000.</li> <li>2. Gajda W. HTML, XHTML i CSS. Praktyczne projekty. Helion, 2007.</li> <li>3. Welling L., Thomson L.: PHP i MySQL. Tworzenie stron WWW, Vademecum profesjonalisty. Gliwice: Helion, 2005.</li> </ol> </td> </tr> <tr> <td data-bbox="456 994 794 1464">Supplementary literature</td> <td colspan="2" data-bbox="801 994 1482 1464"> <ol style="list-style-type: none"> <li>1. Krysiak K.. Sieci komputerowe, Kompendium. Wydanie II. Helion, 2005.</li> <li>2. Lemay L. HTML i XHTML dla każdego. Helion, 2004.</li> <li>3. Meyer E. A. CSS według Erica Meyera, Sztuka projektowania stron WWW. Helion, 2005.</li> <li>4. Zakas N.C., McPeak J., Fawcett J. Ajax, Zaawansowane programowanie. Helion, 2007.</li> <li>5. Praca zbiorowa. PHP5, Apache i MySQL od podstaw. Helion, 2005.</li> </ol> </td> </tr> <tr> <td data-bbox="456 1469 794 1487">eResources addresses</td> <td colspan="2" data-bbox="801 1469 1482 1487"></td> </tr> </tbody> </table>			Basic literature	<ol style="list-style-type: none"> <li>1. Douglas E. C.: Sieci komputerowe i intersieci. Warszawa: WNT, 2000.</li> <li>2. Gajda W. HTML, XHTML i CSS. Praktyczne projekty. Helion, 2007.</li> <li>3. Welling L., Thomson L.: PHP i MySQL. Tworzenie stron WWW, Vademecum profesjonalisty. Gliwice: Helion, 2005.</li> </ol>		Supplementary literature	<ol style="list-style-type: none"> <li>1. Krysiak K.. Sieci komputerowe, Kompendium. Wydanie II. Helion, 2005.</li> <li>2. Lemay L. HTML i XHTML dla każdego. Helion, 2004.</li> <li>3. Meyer E. A. CSS według Erica Meyera, Sztuka projektowania stron WWW. Helion, 2005.</li> <li>4. Zakas N.C., McPeak J., Fawcett J. Ajax, Zaawansowane programowanie. Helion, 2007.</li> <li>5. Praca zbiorowa. PHP5, Apache i MySQL od podstaw. Helion, 2005.</li> </ol>		eResources addresses					
Basic literature	<ol style="list-style-type: none"> <li>1. Douglas E. C.: Sieci komputerowe i intersieci. Warszawa: WNT, 2000.</li> <li>2. Gajda W. HTML, XHTML i CSS. Praktyczne projekty. Helion, 2007.</li> <li>3. Welling L., Thomson L.: PHP i MySQL. Tworzenie stron WWW, Vademecum profesjonalisty. Gliwice: Helion, 2005.</li> </ol>														
Supplementary literature	<ol style="list-style-type: none"> <li>1. Krysiak K.. Sieci komputerowe, Kompendium. Wydanie II. Helion, 2005.</li> <li>2. Lemay L. HTML i XHTML dla każdego. Helion, 2004.</li> <li>3. Meyer E. A. CSS według Erica Meyera, Sztuka projektowania stron WWW. Helion, 2005.</li> <li>4. Zakas N.C., McPeak J., Fawcett J. Ajax, Zaawansowane programowanie. Helion, 2007.</li> <li>5. Praca zbiorowa. PHP5, Apache i MySQL od podstaw. Helion, 2005.</li> </ol>														
eResources addresses															
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>[1] List and describe basics elements of computer networks.</li> <li>[2] Describe advantages and disadvantages of various transmissions media types.</li> <li>[3] Describe role and functions of particular layers in the ISO/OSI reference model.</li> <li>[4] Explain functions of the ARP, IP, TCP and UDP protocols.</li> <li>[5] List and describe basic protocols of the TCP/IP model application layer.</li> </ol>														
Work placement	Not applicable														