



Subject card

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|---|---|---|-------------------------------------|------------|---|-------------------|-----|
| 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 2021 | Academic year of realisation of subject | | | | 2021/2022 | |
| 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 | Department of Control Systems Engineering -> 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 | | | | | |
| 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_K02 | Skills in individual work - building of simple, dynamic web pages with (X)HTML, CSS, PHP, SQL languages and MySQL database. Skills in group work - building, configuration and diagnostics of heterogeneous Ethernet network. | | | [SK3] Assessment of ability to organize work [SK1] Assessment of group work skills [SK2] Assessment of progress of work | | |
| | K6_U05 | Practical skills in use of various techniques of engineering tasks realization for computer networks diagnosis and simple internet applications purposes. | | | [SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools | | |
| | K6_W09 | Student in a basic way describes the security mechanisms of the TCP/IP model protocols | | | [SW1] Assessment of factual knowledge | | |
| | K6_W06 | Student describe computer networks elements (hardware and software). Uses basics tools for wire Ethernet cables and diagnosis purposes. Differentiates advantages and disadvantages of various transmissions media types. Interprets role and functions of particular layers in the ISO/OSI reference model. Interprets functions of the ARP, IP, TCP and UDP protocols. Specifies and describes basic protocols of the application layer. Describe functioning of the wireless network WLAN (WiFi). Uses on the basic level the (X)HTML, CSS, PHP, SQL languages and MySQL database for the simple, dynamic web pages construction purposes. | | | [SW1] Assessment of factual knowledge | | |

| 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" data-bbox="448 535 1487 696"> <thead> <tr> <th data-bbox="448 535 794 568">Subject passing criteria</th> <th data-bbox="794 535 1141 568">Passing threshold</th> <th data-bbox="1141 535 1487 568">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="448 568 794 604">Laboratory project</td> <td data-bbox="794 568 1141 604">50.0%</td> <td data-bbox="1141 568 1487 604">35.0%</td> </tr> <tr> <td data-bbox="448 604 794 660">Reports and tests during laboratory exercises</td> <td data-bbox="794 604 1141 660">50.0%</td> <td data-bbox="1141 604 1487 660">15.0%</td> </tr> <tr> <td data-bbox="448 660 794 696">Lecture test</td> <td data-bbox="794 660 1141 696">50.0%</td> <td data-bbox="1141 660 1487 696">50.0%</td> </tr> </tbody> </table> | | | Subject passing criteria | Passing threshold | Percentage of the final grade | Laboratory project | 50.0% | 35.0% | Reports and tests during laboratory exercises | 50.0% | 15.0% | Lecture test | 50.0% | 50.0% |
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| Laboratory project | 50.0% | 35.0% | | | | | | | | | | | | | |
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| Lecture test | 50.0% | 50.0% | | | | | | | | | | | | | |
| Recommended reading | <table border="1" data-bbox="448 703 1487 1496"> <tbody> <tr> <td data-bbox="448 703 794 992">Basic literature</td> <td colspan="2" data-bbox="794 703 1487 992"> <ol style="list-style-type: none"> 1. Douglas E. C.: Sieci komputerowe i intersieci. Warszawa: WNT, 2000. 2. Gajda W. HTML, XHTML i CSS. Praktyczne projekty. Helion, 2007. 3. Welling L., Thomson L.: PHP i MySQL. Tworzenie stron WWW, Vademecum profesjonalisty. Gliwice: Helion, 2005. </td> </tr> <tr> <td data-bbox="448 992 794 1464">Supplementary literature</td> <td colspan="2" data-bbox="794 992 1487 1464"> <ol style="list-style-type: none"> 1. Krysiak K.. Sieci komputerowe, Kompendium. Wydanie II. Helion, 2005. 2. Lemay L. HTML i XHTML dla każdego. Helion, 2004. 3. Meyer E. A. CSS według Erica Meyera, Sztuka projektowania stron WWW. Helion, 2005. 4. Zakas N.C., McPeak J., Fawcett J. Ajax, Zaawansowane programowanie. Helion, 2007. 5. Praca zbiorowa. PHP5, Apache i MySQL od podstaw. Helion, 2005. </td> </tr> <tr> <td data-bbox="448 1464 794 1496">eResources addresses</td> <td colspan="2" data-bbox="794 1464 1487 1496"></td> </tr> </tbody> </table> | | | Basic literature | <ol style="list-style-type: none"> 1. Douglas E. C.: Sieci komputerowe i intersieci. Warszawa: WNT, 2000. 2. Gajda W. HTML, XHTML i CSS. Praktyczne projekty. Helion, 2007. 3. Welling L., Thomson L.: PHP i MySQL. Tworzenie stron WWW, Vademecum profesjonalisty. Gliwice: Helion, 2005. | | Supplementary literature | <ol style="list-style-type: none"> 1. Krysiak K.. Sieci komputerowe, Kompendium. Wydanie II. Helion, 2005. 2. Lemay L. HTML i XHTML dla każdego. Helion, 2004. 3. Meyer E. A. CSS według Erica Meyera, Sztuka projektowania stron WWW. Helion, 2005. 4. Zakas N.C., McPeak J., Fawcett J. Ajax, Zaawansowane programowanie. Helion, 2007. 5. Praca zbiorowa. PHP5, Apache i MySQL od podstaw. Helion, 2005. | | eResources addresses | | | | | |
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| Example issues/ example questions/ tasks being completed | <p>[1] List and describe basics elements of computer networks.</p> <p>[2] Describe advantages and disadvantages of various transmissions media types.</p> <p>[3] Describe role and functions of particular layers in the ISO/OSI reference model.</p> <p>[4] Explain functions of the ARP, IP, TCP and UDP protocols.</p> <p>[5] List and describe basic protocols of the TCP/IP model application layer.</p> | | | | | | | | | | | | | | |
| Work placement | Not applicable | | | | | | | | | | | | | | |