GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

| | | | |
|---|---|---|---|
| Subject name and code | Computer Networks, PG_00047711 | | |
| Field of study | Informatics | | |
| Date of commencement of studies | October 2025 | Academic year of realisation of subject | 2025/2026 |
| Education level | second-cycle studies | Subject group | Obligatory subject group in the field of study<br>Subject group related to scientific research in the field of study |
| Mode of study | Part-time studies | Mode of delivery | at the university |
| Year of study | 1 | Language of instruction | Polish |
| Semester of study | 1 | ECTS credits | 7.0 |
| Learning profile | general academic profile | Assessment form | exam |
| Conducting unit | Department of Computer Communications -> Faculty of Electronics Telecommunications and Informatics -> Wydziały Politechniki Gdańskiej | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr inż. Krzysztof Nowicki | |
| | Teachers | dr inż. Krzysztof Gierłowski<br>dr inż. Wojciech Gumiński<br>dr inż. Michał Hoeft<br>mgr inż. Jakub Grochowski<br>dr inż. Krzysztof Nowicki | |

**Lesson types and methods of instruction**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 24.0 | 0.0 | 15.0 | 0.0 | 0.0 | 39 |

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 | 39 | 12.0 | 124.0 | 175 |

**Subject objectives**

Student classifies basic networking problems and identifies and analyzes selected protocols and mechanisms implemented in standard LAN and WAN solutions

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K7_W02] knows and understands, to an increased extent, selected laws of physics and physical phenomena, as well as methods and theories explaining the complex relationships between them, constituting advanced general knowledge in the field of technical sciences related to the field of study | 1.Student knows the principles of assessing reliability of networks.<br>2. Defines the QoS models of services in IP networks (IP QoS).<br>3. Defines the concept of justice and geolocation in networks.<br>4. Defines the concept of net neutrality | [SW1] Assessment of factual knowledge |

<table>
<tr><td>Subject contents</td><td>Transmission media - structured cabling standards<br><br>Basic networking concepts - overview and analysis of layered architectures<br>Fundamentals of signal and information theory<br>Mechanisms of data link layer - multiplexing, synchronization and coding principles<br>Flow control in the data link layer - ARQ algorithms<br>Methods to ensure fairness of service and proper access to network resources<br><br>Providing differentiated quality of service in IP networks - IP QoS models<br><br>IPv6 solutions<br><br>Methods for flow control at the transport layer protocol for example TCP<br><br>Basic problems of geolocation in computer networks<br><br>Problems of ensuring net neutrality<br><br>Cloud systems</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Required knowledge of the basics of computer networks operation</td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>lab</td><td>50.0%</td><td>40.0%</td></tr>
<tr><td>lecture</td><td>50.0%</td><td>60.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>K. Nowicki, J. Światowiak: Protokoły IPv6<br><br>Krawczyk H., Kaczmarek S., Nowicki K.: Aplikacje i usługi a technologie sieciowe, WN PWN 2018<br><br>F. Halsall: Data Communications, Computer Networks and Open Systems. Addison-Wesley<br><br>Lecture materials available in the form of pdf files</td></tr>
<tr><td>Supplementary literature</td><td>J. Woźniak, K. Nowicki; Sieci LAN, MAN, WAN: protokoły komunikacyjne. O.W Politechniki Warszawskiej<br><br>A. Tanenbaum: Computer Networks, J. Wiley<br><br>W. Stallings: High-Speed Networks. Performance and Quality of Service, Prentice Hal</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Issues and exam questions include a list of lecture topics</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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