Subject card

| Subject name and code | Computer Networks Administration, PG_00047956 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Field of study | Informatics |  |  |  |  |  |  |
| Date of commencement of studies | October 2022 |  | Academic year of realisation of subject |  |  | 2025/2026 |  |
| Education level | first-cycle studies |  | Subject group |  |  | Optional subject group <br> Subject group related to scientific research in the field of study |  |
| Mode of study | Full-time studies |  | Mode of delivery |  |  | at the university |  |
| Year of study | 4 |  | Language of instruction |  |  | Polish |  |
| Semester of study | 7 |  | ECTS credits |  |  | 4.0 |  |
| Learning profile | general academic profile |  | Assessment form |  |  | exam |  |
| Conducting unit | Department of Computer Communications -> Faculty of Electronics, Telecommunications and Informatics |  |  |  |  |  |  |
| Name and surname of lecturer (lecturers) | Subject supervisor |  | dr inż. Wojciech Gumiński |  |  |  |  |
|  | Teachers |  | dr inż. Wojciech Gumiński |  |  |  |  |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Projec | Seminar | SUM |
|  | Number of study hours | 15.0 | 0.0 | 30.0 | 0.0 | 0.0 | 45 |
|  | 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 | 45 |  | 4.0 |  | 51.0 | 100 |
| Subject objectives | The main objective of the course is to provide students with knowledge about the principles of administration of computer networks and to gain by them practical skills in the field of network monitoring and implementation of solutions which increase network reliability and network security. |  |  |  |  |  |  |


| Learning outcomes | Course outcome | Subject outcome | Method of verification |
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|  | [K6_U03] can design, according to required specifications, and make a simple device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment | Student makes plan of names and addresses of the devices. | [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment |
|  | [K6_W43] Knows and understands, to an advanced extent, standards and methods of IT systems administration, monitoring of processes occurring in them and immunising them to undesirable phenomena and activities | Student manages permissions. Student uses tools to monitor the network. <br> Students choose the method of network inventory. | [SW1] Assessment of factual knowledge |
|  | [K6_W42] Knows and understands, to an advanced extent, architecture, design principles and methods of hardware and software support for local and distributed information systems, including computing systems, databases, computer networks and information applications, as well as the principles of human cooperation with computers and computeraided teamwork | Student identifies the tasks of administrator. <br> Student compares the methods of archiving data in the network. Student makes plan of names and addresses of the devices. | [SW1] Assessment of factual knowledge |
|  | [K6_U04] can apply knowledge of programming methods and techniques as well as select and apply appropriate programming methods and tools in computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study | Student manages permissions. Student uses tools to monitor the network. | [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment |
| Subject contents | 1. Network administrator tasks 2. Cooperation with systems administrator 3. Analysis and realization of network goals 4. Network addresses and names politics 5 . Routes and network protocols selection 6. Network flow monitoring and shaping 7. Network flow counting and optimization 8. Network services administration (DHCP, DNS, WINS) 9. WAN access management (NAT, PAT, Proxy) 10. Network serwers administration (WWW, FTP, e-mail) 11. Network resource sharing 12. Domain administration 13. User and hardware authentication. Network privileges. 14. Remote access 15. Network security. Intruder indentyfication. 16. Network failures diagnosis and fixing 17. Network evolution, network documentation and hardware selection |  |  |
| Prerequisites and co-requisites |  |  |  |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
|  | Written examination | 50.0\% | 40.0\% |
|  | Practical exercise | 50.0\% | 60.0\% |
| Recommended reading | Basic literature | M. Sportack, T. Northrup; Networking Essentials Unleashed; Sams Publishing 2006 <br> J. Scott Haugdahl; Network Analysis and Troubleshooting; AddisonWesley Professional 1999 |  |
|  | Supplementary literature | No requirements |  |
|  | eResources addresses | Adresy na platformie eNauczanie: |  |
| Example issues/ example questions/ tasks being completed |  |  |  |
| Work placement | Not applicable |  |  |

