

## Subject card

|                                             |                                                                                                                                                                                                     |                                                          |                                                                                    |                                     |                                                                                                                                                |            |     |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----|
| Subject name and code                       | Operating Systems, PG_00178481                                                                                                                                                                      |                                                          |                                                                                    |                                     |                                                                                                                                                |            |     |
| Field of study                              | Informatics and Econometrics                                                                                                                                                                        |                                                          |                                                                                    |                                     |                                                                                                                                                |            |     |
| Date of commencement of studies             | October 2025                                                                                                                                                                                        |                                                          | Academic year of realisation of subject                                            |                                     | 2025/2026                                                                                                                                      |            |     |
| Education level                             | Bachelor's studies                                                                                                                                                                                  |                                                          | Subject group                                                                      |                                     | Obligatory subject group in the field of study<br>Optional subject group<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                            | academic                                                                                                                                                                                            |                                                          | Assessment form                                                                    |                                     | credit                                                                                                                                         |            |     |
| Conducting unit                             |                                                                                                                                                                                                     |                                                          |                                                                                    |                                     |                                                                                                                                                |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                  |                                                          | dr inż. Przemysław Jatkiewicz                                                      |                                     |                                                                                                                                                |            |     |
|                                             | Teachers                                                                                                                                                                                            |                                                          | dr inż. Przemysław Jatkiewicz<br><br>mgr inż. Dawid Jereczek                       |                                     |                                                                                                                                                |            |     |
| Lesson types                                | Lesson type                                                                                                                                                                                         | Lecture                                                  | Tutorial                                                                           | Laboratory                          | Project                                                                                                                                        | Seminar    | SUM |
|                                             | Number of study hours                                                                                                                                                                               | 8.0                                                      | 0.0                                                                                | 32.0                                | 0.0                                                                                                                                            | 0.0        | 40  |
|                                             | 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                                                                                                                                                                               | 40                                                       |                                                                                    | 2.0                                 |                                                                                                                                                | 133.0      | 175 |
| Subject objectives                          | Familiarising students with operating systems and the roles they can play in a company's IT infrastructure.                                                                                         |                                                          |                                                                                    |                                     |                                                                                                                                                |            |     |
| Learning outcomes                           | Course outcome                                                                                                                                                                                      |                                                          | Subject outcome                                                                    |                                     | Method of verification                                                                                                                         |            |     |
|                                             | [IiEL3_U02] Students can select or construct econometrics, informatics or statistics tools and apply them to describe and solve economic and social problems.                                       |                                                          | The student is able to select and configure network services in Windows and Linux. |                                     | [SU5] implementation of a problem task                                                                                                         |            |     |
|                                             | [IiEL3_W08] The student has advanced knowledge and understanding of the possibilities and dilemmas of using informatics and statistics tools and their importance in the context of changing needs. |                                                          | The student understands the structure and application of operating systems.        |                                     | [SW4] test/exam - oral or written                                                                                                              |            |     |
|                                             | [IiEL3_U12] The student can design and implement IT systems to enhance business operations and effectively utilize modern ICT technologies for management and business communication.               |                                                          | The student is able to install and configure Linux and Windows operating systems.  |                                     | [SU5] implementation of a problem task                                                                                                         |            |     |

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|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Subject contents                                               | <p>Lecture:<br/>History, role and tasks of an operating system, classification of operating systems, concepts: resource, process, thread, file systems, installation, configuration and management of Linux, Linux shell commands, Linux directory services, Apache, openLDAP, SAMBA, installation and configuration of Windows, Windows server roles, network configuration, desktop configuration, device drivers, Windows shell commands, Windows directory services, AD Domain Services, AD Certificate Services, AD Lightweight Directory Services, AD Rights Management Services, AD Federation Services, shell scripts, batch files, PowerShell scripts, Bash scripts.</p> <p>Laboratory classes:<br/>Creating virtual machines, installing Ubuntu server LTS, installing SSH, creating, deleting, renaming files and directories, managing user accounts, managing file and directory permissions, hard and soft links, PAM modules, installing and managing OpenLDAP and SAMBA, LAMP server, Nginx application server, installing Windows Server, configuring drivers, networks, desktop, preparing the domain environment, adding objects to the domain, managing access to resources, security policies, DHCP service, DNS service, IIS application server, creating a bat batch file, creating a PowerShell script, creating a Bash script.</p> |                                                                                                                    |                               |
| Prerequisites and co-requisites                                | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                    |                               |
| Assessment methods and criteria                                | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Passing threshold                                                                                                  | Percentage of the final grade |
|                                                                | Test exam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 51.0%                                                                                                              | 50.0%                         |
|                                                                | Windows task implementation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 51.0%                                                                                                              | 25.0%                         |
|                                                                | Linux task implementation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 51.0%                                                                                                              | 25.0%                         |
| Recommended reading                                            | Basic literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Original script                                                                                                    |                               |
|                                                                | Supplementary literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Unix i Linux. Przewodnik Administratora. Evi Nemeth, Garth Snyder, Trent R. Hein , Ben Whaley , Dan Mackin. Helion |                               |
|                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Biblia Windows Server. Podręcznik Administratora. Krzysztof Wołk, Wydawnictwo Psychosock                           |                               |
|                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PowerShell dla administratorów systemów. Prosta automatyzacja zadań. Adam Bertram, Helion                          |                               |
|                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Bash. Leksykon kieszonkowy. Przewodnik dla użytkowników i administratorów systemów. Arnold Robbins. Helion         |                               |
|                                                                | eResources addresses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                    |                               |
| Example issues/<br>example questions/<br>tasks being completed | <p>List the tasks of the DNS server.</p> <p>Start the DHCP server and reserve an IP address for the specified client.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                    |                               |
| Work placement                                                 | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                    |                               |

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