

Faculty: FACULTY OF TELECOMMUNICATIONS AND MANAGEMENT
Department: INFORMATION TECHNOLOGIES
Professional Field: 5.3 COMMUNICATION AND COMPUTER TECHNOLOGY
Specialty: COMPUTER ADMINISTRATION OF SOFTWARE APPLICATIONS
Educational-qualification degree: PROFESSIONAL BACHELOR

LEARNING COURSE DESCRIPTION

1.Course title: Operating systems Workshop

2.Course code: P.16.015.2

3.Type of the course: elective

4.Level: Professional bachelor

5.Year of study: 1

6.Semester: 2

7.Number of credits:3

8.Name of the lecturer: Associate Professor Dr. Eng. Filip Batalov

9.Course learning outcomes:

The aim of the course is to give students, in a systematized form, theoretical and practical knowledge and skills necessary to manage the basic infrastructure of Windows Server.

Students who have completed their studies in the discipline must acquire:

Basic knowledge of:

- order of installation and setup of Windows Server;
- installation of domain controllers, including using IFM;
- a system for organizing comprehensive protection of information with limited access in the organization, including personal data;
- the Active Directory Domain Services (AD DS) service;
- AD DS administration order;
- a way to ensure the security of Windows servers using group policies;
- Network Address Protection implementation features.

Practical skills for:

- Windows Server configuration;
- managing services, including using PowerShell;
- provision of network infrastructure for file services and data.

Competencies:

- perform Windows Server administration;
- understand the basic principles of managing the security of different servers;
- configure and troubleshoot remote access;
- understand the principles of routing and know the basic protocols;
- create a plan to manage the addition, deletion and migration of servers in the Windows Server network infrastructure;
- develop base levels for monitoring and managing servers in the Windows Server network infrastructure;
- conduct performance evaluation based on baselines and develop monitoring rules, as well as determine appropriate thresholds that will be applied for notification when problems occur;
- analyze the settings of the network environment in which several network policies and server access roles are defined;
- to evaluate and plan implementation of roles for DNS and DHCP servers;
- ensure the security of servers and network infrastructure.

10.Teaching methods:

The method of teaching: Practical exercises are held in the computer laboratories of the department, equipped with the necessary network devices and software.

Before each practical lesson, students are informed about the need for preliminary preparation on the relevant topic. For certain topics of the learning material provided for the practical exercises, students prepare protocols containing the data from the conducted simulations and research.

The volume of practical classes, given the specifics of the study course and to achieve the goals, tasks and expected results when organizing out-of-classroom employment, is 75% of the total classes. The following forms of independent work are envisaged:

- preparation for conducting practical exercises;
- protocol development and protection;
- solving tasks assigned during the lectures for independent work.

The consistent study of the practical examples during lectures, the study material, and finally, the implementation of the practical exercises allows students to acquire new competencies necessary for their professional work and improve the professional level within the framework of the qualification available under the "Administration" program on Windows Server".

11. Prerequisites:

Students should have prior knowledge of Introduction to the major, Fundamentals of Operating Systems, Fundamentals of Programming, Engineering Mathematics, etc. included in the curriculum of the specialty.

12. Course contents:

The course covers topics related to installing Windows Server, installing and configuring roles and services, Windows Server network settings, working with DHCP clients and servers, setting up file and print services, implementing server virtualization using Hyper-V, Working with DNS clients and servers, administration of directory services (Active Directory), backup copies and recovery of Windows OS (Backup and Recovery), optimization of the operation of file servers, setting up of extended audio, implementation of services for Active Directory certification, monitoring and management of performance (Monitoring server performance), management of updates and security (Patching and Security management), automation of administrative tasks (Automating Windows Administration).

13. Bibliography

Basic literature:

1. Уилиам Панек, MCSA Windows Server 2016: Пълно учебно ръководство - том 1, Алекс-Софт, София 2019.
2. Уилиам Панек, MCSA Windows Server 2016: Пълно учебно ръководство - том 2, Алекс-Софт, София 2019.
3. Уилиам Панек, MCSA Windows Server 2016: Пълно учебно ръководство - том 3, Алекс-Софт, София 2020.
4. Nickel, Jochen. Практически наръчник по системно и мрежово администриране. Windows Server 2019 , Асеновци, София, 2020.

Additional literature:

1. Уилиам Р. Станек, Windows NT TCP/IP - Мрежово администриране, ЗеСТ Прес, София, 2020.

14. Assessment methods and criteria:

The course ends with an ongoing assessment.

The final grade in the course is formed on the basis of a point system, as the maximum number of points that students can receive is 100. They are formed by the following activities:

- solving and timely submission of tasks for independent work - 60 points;
- active participation in practical exercises and defense of protocols - 40 points;

15. Language of instruction: *Bulgarian/English*