ПРИЛОЖЕНИЕ 6

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

LEARNING COURSE DESCRIPTION

1.Course title:Linux Administration
2.Course code: P.17.028.1
3.Type of the course: *compulsory*
4.Level: *Professional Bachelor*
5.Year of study: 2
6.Semester: 4
7.Number of credits: 3
8.Name of the lecturer: Assist. Prof. Strahil Sokolov, Eng. PhD
9.Course learning outcomes:
The aim of the course is to provide students with in-depth knowledge in the field of Linux administration.
Students who have completed their training in the discipline must acquire the following knowledge and skills for:

- Resources and troubleshooting related resources under Linux;
- The Linux kernel, its management with a running operating system, as well as troubleshooting;
- Management of the startup process and the Linux file system;
- Work with Linux network settings and troubleshooting related to work;
- System maintenance and backup;
- Creating and protecting a DNS server under Linux;
- Linux system protection and configuration of secure remote access.

Practical skills in Linux administration: installation, configuration of users and services, process automation and troubleshooting.
Competencies: Upon successful completion of the course students should be able to:

- build and maintain services under Linux;
- design services management solutions under Linux;
- to identify and eliminate malfunctions;
- Demonstrate confident performance in RedHat and / or Debian-based environments.

10.Teachingmethods:
The method of teaching is through lectures, block or one lesson per week for 15 weeks and practical exercises in block or one lesson per week for 15 weeks.
11. Prerequisites:
Students should have prior knowledge of programming basics, cryptography, computer architectures and computer networks.
12. Course contents:
The discipline explores Resource planning. Monitoring of hardware resources, network capacity; identifying and resolving resource issues.
Core components. Kernel compilation. Manage the current state of the kernel and troubleshoot. Startup process management. Create your own services in SysVinit. System recovery. Alternative bootloaders.
File systems and devices. File system support under Linux.
File system configuration. Using Logical Volume Manager Manage file systems and block devices. Basic network settings. Fine-tune the network and troubleshoot
System support. Compiling programs from source code. Save the current state of the file system and create a backup. Notifying users of certain system problems.

DNS server management. Basic configuration. Creation and maintenance of DNS zones. DNS security settings.
DNS server management. Basic configuration. Creation and maintenance of DNS zones. DNS security settings.
Proxy server management. Configure nginx as a web server and reverse proxy
File server management. NFS server configuration. Manage servers for a distributed network file system.
Network client management. DHCP configuration. Use PAM for network auto-identification.
Email service management. Using an e-mail server. Management of local e-mail delivery.
System protection. Router configuration. FTP file sharing server protection.
Secure shell (SSH) management. Main tasks for increasing the security of the system. OpenVPN management.

13. Bibliography

Basic literature:

1. 1. „Paul Cobbaut, Linux System Administration, 2014, www.linux-training.be, Red Hat Enterprise Linux 7 System Administrator's Guide. 2015
2. The LPIC-2 Exam Prep, http://lpic2.unix.nl/, 2017
3. Raphaël Hertzog and Roland Mas,The Debian Administrator’s Handbook, 2015..

Additional literature:

1. Roderick W. Smith, LPIC-2 Linux Professional Institute Certification Study Guide, 2011
2. Paul Cobbaut, Linux Servers, 2014, www.linux-training.be
3. Lars Wirzenius et. al., The Linux System Administrator's Guide. 2004
4. Frank Ronneburg, Debian GNU/Linux Anwenderhandbuch, 2012, URL: http://debiananwenderhandbuch.de/

14. Assessment methods and criteria:

The course ends with an exam.

1.Requirements for the assessment of the six-point system

The total number of points from the written exam that can be reached is 100. Each of the questions in the final exam carries 3 points, and the answer to the open question can carry up to 10 points.

2. Formation of the final mark

The formation of the final grade is carried out on the basis of a point system as the maximum number of points that students can receive is 100 and can include various activities.

Forming an assessment in the training course at each of the above stages, according to the points obtained and their ranking according to the six-point system is given in Table 1.

Table 1.

Number of points	Assessment According to the 6-pointScale System
0 – 20	**Fail 2 (F)**
20 – 39	**Fail 2 (FX)**
40 – 49	**Satisfactory 3.00 (E)**
50 – 59	**Satisfactory 3.00 (D)**
60 – 69	**Good 4.00 (C)**
70 – 84	**Very good 5.00 (B)**
85 – 100	**Excellent 6.00 (A)**

15. Language of instruction: Bulgarian/English