CURRICULUM

The project is oriented towards the study of System administration tools and technologies. The emphasis is on acquiring the necessary knowledge so that participants can work as System Administrators after the training. The curriculum is fully aligned with market needs.

In this course, attendees would have the opportunity to get acquainted with popular and free Linux operating system. The course would cover both beginner and advanced use of Linux operating system. The assumption is that the participants do not have previous experience in working with Linux - accordingly, the course starts with basic concepts and gradually moves on to advanced topics. Procedures on how to administer the Linux system and configure system services will be demonstrated to participants. The content of the course would be independent of the Linux distribution and would cover all major Linux distributions (Debian, Ubuntu, CentOS, Fedora, openSUSE etc.).

The training curriculum is divided in two parts (250 hours in total)**.**

First part of the course (70 hours):

- Introduction of Linux operating system, history, basic features, licenses, connection to the GNU system, distributions, certificates.
- Open source philosophy and business model.
- Basic features of Linux, differences in comparisson to Windows operating system, installation and basic settings, software package management, program installation and system update, hardware management and drivers installation.
- Software for everyday work - internet, multimedia, office tools, graphics, programming, basics of working in a network environment, finding documentation and instructions, commands for working with local and remote files and file systems, file access control.

Second part of the course (180 hours):

- Introduction to software systems administration.
- The role of system administrator and the administration of users and groups.
- Process automation using scripting.
- File and file system administration, file system hierarchy and partition needs, disk and partition labeling, partitioning, file system types, formatting, validation and resizing of file system, file system attributes, access lists.
- Basics of hardware systems, recognition of hardware components, system startup process, process control.
- Working with data streams, backing up data, data restoration.
- Introduction to the basics of computer networks, setting network parameters, tools for working with the network, testing network problems, the basics of network services.

Using a large number of practical examples, participants would be able to independently install, configure and administrate Linux operating system. During the classes, participants would have the opportunity to get acquainted with the concepts related to hardware components and computer networks in order to be able to work in system administration after the course.

Main study fields:

1. Basic concepts Linux distribution, tools in graphical and textual environment.
2. Advanced use of tools in a text environment.
3. Getting acquainted with the structure of the system and managing all its elements.
4. Linux system in a network environment.
5. Management of popular services.
6. System and service security.
7. Virtualization and containers.

EXPECTED LEARNING OUTCOMES

All learning outcomes are aligned with the needs of the system administration market and represent not only what potential junior developers need to know, but also include the knowledge that will give them a **competitive edge** compared to other candidates. The most important learning outcomes are:

- How to select and install the appropriate Linux distribution.
- Mastering all relevant tools for working in the command line (bash shell), navigation, file management, processing text data directly using filters and regular expressions, linking commands and advanced work in the command line, automation through scripting.
- Process and resource management skills.
- Taking control of the entire system, from the startup process, through hardware components to software elements. Setting up the Linux kernel.
- Work in a network environment. System protection from unauthorized access and use. Use of specialized tools: bash, gnu core utilities, regexp, vim, redirection, ssh, iptables, systemd, sysctl, grub, partitioning, lvm, raid, mac, kvm etc.
- Management of service systems for web (apache, nginx), e-mail (postfix, dovecot), ftp (vsftp), proxy (squid), file and printer sharing (samba, cups, nfs), databases (MariaDB / MySQL, Postgresql) , security (firewall, mac, antivirus) and virtualization (kvm, containers).
- Successful usage of soft skills of oral and written communication in business environment, non-verbal communication, rules of business etiquette, understanding the importance of intercultural business communication, applying various types and methods of effective business communication in your business and work environment,
- Mastering the techniques of writing a quality CV and cover letter.
- Mastering modern tools for personal and professional presentation on the Internet.
- Creating a good relationship between the trainees and the employers with whom they did the internship, so that even if they cannot stay and work with that employer, they will get a quality recommendation.
- Practical experience transferred by the lecturers, as well as practical experience gained by making examples, homework, projects and work in practice.

TRAINING MATERIALS

The following teaching materials will be used in the training:

- **Examples, tasks and presentations** made by lecturers, in accordance with the needs of the Training, based on their experience, literature and Internet sources. Participants will receive all materials in electronic form.
- **Text documents / scripts written** by lecturers for the purposes of the Training**.** Important parts of the training will be additionally covered with materials that the lecturers will purposely prepare.
- The following **electronic textbooks** will also be used:
    - Computer networks („Računarske mreže“, published by Singidunum University, 2020),
    - Cloud Computing („Klaud računarstvo“, published by Singidunum University, 2021),
    - Career development and business skills („Razvoj karijere i poslovnih veština“, published by Singidunum University, 2020).

METHODOLOGY FOR ENSURING MAXIMUM EMPLOYABILITY

The goal of the proposal is not only to acquire IT skills and knowledge, but also to create a modern system administrator who will be able to cope well on the labor market, as well as to fit into the team at the future workplace. In order to acquire such soft skills, the following activities will be organized:

- **Soft skills development and career orientation:** 40 hours
    - Understanding the importance of effective business communication in a changing work environment and realizing that a well-designed message, written or spoken in an adequate way, is the key to successfully resolving everyday business situations. Communication as a process, interpersonal and organizational communication, verbal (written and oral), nonverbal communication, business etiquette in communication, barriers and overcoming barriers in

business communication, multicultural communication, difficulties and risks of electronic communication.
    - Techniques for writing a quality CV and cover letter. Behavior at job interviews, discussions with human resource managers of different companies, work ethic, time management.

- **Mock interviews:** 5 hours
  Simulation of a business interview. Practical application of knowledge acquired in teaching in a simulated interview for the job of System Administrator.

- **Career monitoring**
  Since career guidance involves work even after the completion of these trainings, all participants will have the opportunity to schedule consultations with soft skills trainers during the internship in order to obtain additional information and be ready for the upcoming interview or business engagement.

METHODOLOGY OF INTRODUCTORY TESTING OF CANDIDATES

Online info session

In order to acquaint potential candidates with the content and benefits of the training offered by Bidder, an online info session will be organized within which a presentation of the training and Q&A session will be organized.

Conducting the testing

Testing will be conducted using an online test and interview.

- Computer skills and problem solving test - 70% of total points;
- HR interview (determining motivation, commitment, ability to work in a team, desire to improve, etc.) – 30% of total points.

Testing team

A team of three project members will select candidates: HR expert, Project manager and another key expert.

A model based on rights and gender equality

- So far, Bidder has conducted a large number of activities and trainings in which all stakeholders are evenly involved and no restrictions based on gender, race, affiliation or disability have been set. This principle will also apply to all users provided for in this proposal.
- In all projects and activities, the bidder takes into account the equal representation of both sexes.

INTERNSHIP PROGRAM

The main goal of the internship program is the business independence of the students by the practical application of the acquired knowledge in the corporate environment.

The internship will end with issuing **certificates of internship completion** from the company that provided internships.

The Bidder will allow participants to choose between **two ways of conducting the internship: regular and online internship.**

INTERNSHIP PLAN

- Internships are scheduled to last for 120 hours in the company after the completion of all trainings. Partners were selected on the basis of positive experiences gained in cooperation with the Bidder, which relate to the fact that all partner companies have always been interested in providing internships and assistance in working with participants in previously organized trainings, because they recognized the potential of creating new staff with specific skills for their needs.