**DESCRIPTION OF A STUDY COURSE – SYLLABUS**

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| **Title of a course** | **Operating Systems Concepts** | | | | |
| **Study programme** | **Professional undergraduate study Telematics** | | | | |
| **Status of a course** | Obligatory | | | | |
| **Year of study** | 2 | **Semester** | s | **ECTS credits** | 5 |
| **Goals of a course** | | | | | |
| The aim of the course is to gain knowledge about operating system concepts, their purpose and the mechanisms by which they are realized. Students will apply the adopted methods and techniques to practical assignments. | | | | | |
| **Conditions for enrolling course** | | | | | |
| No conditions | | | | | |
| **Learning outcomes on a level of a study programme which includes course** | | | | | |
| Describe the architecture and working principle of computers and components, and the basic features of operating systems.  Apply engineering methods and principles in the field of informatics. | | | | | |
| **Expected learning outcomes on a level of a course** | | | | | |
| 1. Define basic concepts and characteristics of operating systems. 2. Describe the structure of operating systems. 3. Apply algorithms for the allocation of processors to processes and synchronization algorithms among them across multiple systems. 4. Apply algorithms for the operation of working, virtual and secondary memory. 5. Describe the elements of operating systems in the operation of I/O devices. | | | | | |
| **Content of a course** | | | | | |
| Introduction into operating systems. History and development of operating systems. Types of operating systems. Hierarchical structure of operating systems. Connecting operating systems and machines, communication between elements. Basic elements: process, glitches, memory management, working with entry and exit devices, data flow systems, safety, human and systematic calls. Competition and synchronization of a process, glitches, managing the processor. Paging, segmentation and memory protection. Allocating resources. Dealing with files, safety and protection. Thread. Multithread-systems. Communication among threads. Shells to work with an operating system. And their programming. The client-attendant concept. Examples of installation of operating systems. Operating systems configuration. Virtual machines. Operating systems for mobile devices. | | | | | |