Academic discipline:
"Operating systems and computer networks"

Code and name of specialty	1-26 03 01 Information Resource Management
Training course	2
Semester of training	3
Number of class hours:	66
Lectures	30
Seminar classes	-
Practical exercises	-
Laboratory classes	36
Form of intermediate assessment (credit/ differential credit/exam)	credit
Number of credits	4,5
Competencies to be formed	To use the basic principles of software configuration, administration and maintenance

Summary of the content of the academic discipline:
Definition of the operating system (OS). The purpose, composition and functions of the OS. The concept of computer resources. Classification of the OS. Single-program, multi-program, multi-user and multiprocessor operating systems. Tasks, processes, and threads. Multiprogramming. Batch processing, time sharing, dialog mode. Process and flow management. Process and flow planning. Levels of parallelism; jobs, tasks, processes, threads. Semaphores, monitors, message transmission. Resources and their capture by processes. Unloaded and non-unloaded resources. Hardware and software support for multiprogramming. Hierarchical organization of memory. Memory allocation algorithms. Memory allocation. Virtual memory. Paged, segmented, and segmented-page memory organization. Principles of operation of I/O equipment. Organization of parallel operation of I/O devices and the processor. Coordination of exchange rates and data caching. Separation of devices and data between processes. Providing a logical interface. The concept of a file. Naming, structure, and file types. Attributes and file access, file operations. The concept of a catalog. The structure of the file system. Implementation of files and directories. Disk resource management. The concept of security. Security threats.