

**RTU Course "Operating Systems"**

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**General data**

Code	DIP381
Course title	Operating Systems
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Undergraduate Studies
Course type	Academic
Field of study	Computer Science
Responsible instructor	Eleonora Latiševa
Academic staff	Igors Ščukins
Volume of the course: parts and credits points	1 part, 3.0 Credit Points, 4.5 ECTS credits
Language of instruction	LV, EN
Annotation	Conception of Operating System. Tasking and processes. Process coordination and synchronization. Physical and virtual memory organization. OS performance evaluation. OS examples - MS DOS, UNIX, OS/2, Windows.
Goals and objectives of the course in terms of competences and skills	To obtain knowledge about OS, OS components and their functions. Usage of different OS.
Structure and tasks of independent studies	Literature research, presentation and laboratory work dedicated to socket usage.
Recommended literature	1.Робачевский А. М. Операционная система UNIX. – СПб.:БХВ-Петербург, 2002. – 528 с.:ил. 2.Сетевые операционные системы / В. Г. Олифер, Н. А. Олифер. – СПб.: Питер, 2001. – 544 с.:ил. 3.Операционные системы / Д. Бэкон, Т. Харрис. – СПб.: Питер; Киев: Издательская группа ВНУ, 2004. – 800 с.: ил. 4.Гордеев А.В. Операционные системы. С-Пб.: Питер,2004, - 416 с.: ил. 5.Вильямс Столлингс. Операционные системы. М., 2002, - 848 с.: ил. 6.Дейтел Г. Введение в ОС. Пер. с англ. – М.: Мир. 1987.
Course prerequisites	Programming languages, data structures

**Course outline**

Theme	Hours
System software. Operating system definition, components and resources.	2
OS structure models. OS components.	2
OS module functionality: kernel and additional modules, OS mobility.	2
MS DOS: definition, structure components, interrupt system, command execution.	2
MS DOS file system FAT.	2
MS DOS memory management: CMA, UMA, XMA, EMS, XMS, HMA, UMB.	2
Concurrent processes. Semaphore definition. Banker algorithm.	2
OS kernel components and their functioning.	2
Virtual memory, paging, segmentation.	4
OS input and output system organization.	4
OS file system organization.	4
OS resource allocation and planning.	2
OS survey.	2
Laboratory works.	16

**Learning outcomes and assessment**

Learning outcomes	Assessment methods
Is able to explain OS functions and functionality principles.	Practical laboratory work, homework, test, exam.
Is able to use different operating systems and service systems.	Practical laboratory work, homework, test, exam.
Is able to elaborate skripts.	Practical laboratory work, homework, test, exam.

**Study subject structure**

Part	CP	Hours per Week			Tests		
		Lectures	Practical	Lab.	Test	Exam	Work
1.	3.0	2.0	0.0	1.0		*	