



## RTU Course "Programming of Processes"

12306 Lietišķo datorzinātņu katedra

### General data

Code	DPI401
Course title	Programming of Processes
Course status in the programme	Compulsory/Courses of Limited Choice; Courses of Free Choice
Course level	Post-graduate Studies
Course type	Academic
Field of study	Computer Science
Responsible instructor	Sukovskis Uldis
Volume of the course: parts and credits points	1 part, 4.0 Credit Points, 6.0 ECTS credits
Language of instruction	LV, EN
Possibility of distance learning	Not planned
Abstract	This course covers process management, theoretical and practical aspects of scheduling and synchronization techniques, including the use of Petri net modeling process. Memory management, including virtual memory and page replacement algorithms, distributed systems management methods and algorithms are also included in the course. Students acquire skills for independent analysis and presentation of the theoretical material.
Goals and objectives of the course in terms of competences and skills	To learn theoretical foundations, methods and algorithms of the process management, memory organization and management, and distributed computing systems management used in modern operating systems. Develop skills for analysis and presentation of the theoretical material.
Structure and tasks of independent studies	To use literature sources to perform analysis and prepare presentations.
Recommended literature	Silberschatz A., Peterson J.L., Galvin P.B. Operating System Concepts. – 8th ed. Addison-Wesley Publishing Company, 2005. Stallings W. Operating Systems: Internals and Design Principles. Prentice Hall, 2009
Course prerequisites	Operating system basics, graph theory

### Course outline

Theme	Hours
Introduction	2
Processes and threads, scheduling of processes	16
Coordination of processes, deadlocks	8
Petri nets for process modeling	6
Memory organization	8
Algorithms used for memory paging	8
Organization and scheduling of the disk storage	4
Distributed systems, their organization and process management	12

### Learning outcomes and assessment

Learning outcomes	Assessment methods
Is able to analyze advantages and disadvantages of the process control and planning algorithms.	Assessment of the independently prepared analysis of literature sources. Passed tests and examination.
Is able to analyze Petri nets for process modeling.	Passed tests and examination.
Has knowledge of the memory management principles and is able to analyze the memory management algorithms.	Assessment of the independently prepared analysis of literature sources. Passed tests and examination.
Is able to explain the disk storage scheduling algorithms	Assessment of the independently prepared analysis of literature sources. Passed examination.
Has knowledge of the distribution system characteristics and is able to explain the process management for distributed systems.	Assessment of the independently prepared analysis of literature sources. Passed tests and examination.

### Study subject structure

Part	CP	ECTS	Hours per Week			Tests			Tests (free choice)		
			Lectures	Practical	Lab.	Test	Exam	Work	Test	Exam	Work
1.	4.0	6.0	2.0	2.0	0.0		*			*	