

### DESCRIPTION OF A STUDY COURSE – SYLLABUS

<b>Title of a course</b>	<b>Operating Systems Concepts</b>				
<b>Head of course</b>	<b>PhD Bernard Vukelić, College Professor</b>				
<b>Study programme</b>	<b>Professional undergraduate study Telematics</b>				
<b>Status of a course</b>	Obligatory				
<b>Year of study</b>	2.	<b>Semester</b>	IV	<b>ECTS credits</b>	5
<b>Teaching plan (L + E + S+ Pr)</b>	2+2+0+0				
<b>Goals of a course</b>					
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.					
<b>Conditions for enrolling course</b>					
No conditions					
<b>Learning outcomes on a level of a study programme which includes course</b>					
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.					
<b>Expected learning outcomes on a level of a course</b>					
<ol style="list-style-type: none"> <li>1. Define basic concepts and characteristics of operating systems.</li> <li>2. Describe the structure of operating systems.</li> <li>3. Apply algorithms for the allocation of processors to processes and synchronization algorithms among them across multiple systems.</li> <li>4. Apply algorithms for the operation of working, virtual and secondary memory.</li> <li>5. Describe the elements of operating systems in the operation of I/O devices.</li> </ol>					
<b>Content of a course</b>					
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.					
<b>Teaching modes</b>	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> auditory exercises <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> distance learning <input type="checkbox"/> field classes		<input checked="" type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and network <input type="checkbox"/> laboratory <input type="checkbox"/> supervisor's work <input type="checkbox"/> other _____		
<b>Comments</b>					
<b>Students' obligations</b>					
Submit homework or solved Assignment and present a solution. <b>Note: highlighted in yellow.</b>					
<b>Grading, evaluation and monitoring of students' work continuously during lectures and exams</b>					
Grading is based upon evaluation of course's learning outcomes' adoption. Grading is performed continuously during lectures and/or during exam, in compliance with the provisions of Regulation on the assessment of students.					

**Continuous check-up:**

Outcomes	Written test	Home assignment	Threshold	Max
Outcome 1	20%		10%	20%
Outcome 2		10%	5%	10%
Outcome 3	25%		12,5%	25%
Outcome 4	25%		12,5%	25%
Outcome 5	20%		10%	20%
Percentage of ECTS	5,4	0,6	-	-
Total	90%	10%	50 %	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

**Exam term:**

Outcomes	Written exam	Oral exam	Max
Outcome 1	20%		20%
Outcome 2		10%	10%
Outcome 3	25%		25%
Outcome 4	25%		25%
Outcome 5	20%		20%
Percentage of ECTS	5,4	0,6	-
Total	90%	10%	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

**Grading:**

A student has passed the exam if he has acquired at least 50% of anticipated credits of a specific learning outcome.

If a student has passed learning outcomes of all courses, the accomplished credits (percentages) of all passed learning outcomes are being added, while the final grade is defined upon following table:

Range of credits (percentages)	Numerical grade	ECTS grade
90,00 – 100,00	Excellent (5)	A
75,00 – 89,99	Very good (4)	B
60,00 – 74,99	Good (3)	C
50,00 – 59,99	Sufficient (2)	D
0,00 – 49,99	Insufficient (1)	F

**Obligatory literature**

1. Operacijski sustavi, Prof. dr. sc. Leo Budin, FER, Zavod za elektroniku, mikroelektroniku, računalne i inteligentne sustave, Element, Zagreb 2011.

**Additional literature**

1. Operating system concepts, Silberschatz, Galvine, Gagne, Sixth Edition, John Wiley & Sons, Inc. 2003
2. Modern operating systems, Andrew S. Tanenbaum, Second Edition, Prentice Hall, Inc, 2001
3. Operating systems - Design and Implementation, Andrew S. Tanenbaum, Albert S. Woodhull, Second Edition Prentice Hall, Inc.



