

<b>Study programme(s):</b> Information Technologies				
<b>Level:</b> Bachelor				
<b>Course title:</b> System Programming				
<b>Lecturer:</b> Vladimir Kurbalija				
<b>Status:</b> obligatory				
<b>ECTS:</b> 4				
<b>Requirements:</b> none				
<b>Learning objectives</b> The objective of the course is to enable the students to learn and apply programming language C, both in ordinarily and low-level programming.				
<b>Learning outcomes</b> <i>Minimum:</i> At the end of the course, it is expected that a successful student is able to realize basic tasks which include dynamic data structure using pointers in programming language C. Furthermore, the usage of UNIX system calls is expected. <i>Desirable:</i> At the end of the course, it is expected that a successful student is able to realize advanced tasks which include advanced dynamic data structure using pointers in programming language C. Furthermore, a deep understanding of memory management as well as the usage of UNIX system calls in an advanced manner is expected.				
<b>Syllabus</b> <i>Theoretical instruction</i> Introduction to programming language C. Control flow statements. Arrays and strings. Functions and parameter passing methods. Pointers, memory allocation and deallocation. Structures, unions and bit fields. Files and file oriented functions. Dynamic data structure: list, tree, stack. UNIX system calls. <i>Practical instruction</i> Implementation of various problems in C. Implementation of various data structures (list, tree, stack). UNIX system calls.				
<b>Literature</b> <i>Recomended</i> 1. Милан Чабаркапа, Ц – основи програмирања, Круг, Београд, 1996. 2. Andrew S. Tanenbaum, Modern Operating Systems, 2nd Edition, Prentice Hall, 2001. 3. Adam Hoover, System Programming with C and Unix, 1st Edition, Pearson, 2009.				
<b>Weekly teaching load</b>				
Lectures: 1	Exercises: 0	Practical Exercises: 2	Student research:	Other:
<b>Teaching methodology</b> During lectures, the classical methodology is applied, through the usage of beam-projector and slides. During practical exercises, students independently apply the mastered techniques.  Knowledge of students is assessed through their ability to apply gained knowledge on appropriate real life problems and is shown during practical exercises. On the oral part of the exam students demonstrate a comprehensive understanding of concepts, data structures and algorithms which are presented.				
<b>Grading method (maximal number of points 100)</b>				
<b>Pre-exam obligations</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>	
Practical instruction	60 (30+30)	Oral exam	40	