

(Table 5.2) Course unit description

<b>Study program:</b> Informatics				
<b>Type and level of studies:</b> Undergraduate academic studies				
<b>Course unit:</b> Introduction to automata theory				
<b>Teacher in charge:</b> Tatjana Stojanovic				
<b>Language of instruction:</b> English				
<b>ECTS:</b> 6				
<b>Prerequisites:</b> Programming skills, Basic data structures and algorithms, Mathematical logic				
<b>Semester:</b> Winter				
<b>Course unit objective</b> Learning basic concepts of formal languages and automata theory and their application in a language processors.				
<b>Learning outcomes of Course unit</b> Student recognizes basic language algebra identities, knows difference between types of formal languages. Student is able to develop a simple programming language analyzer, using given tools.				
<b>Course unit contents</b>  <i>Theoretical classes:</i> Formal languages, deterministic and non-deterministic finite automata and their relations, regular languages and their properties, regular expressions, regular grammars, finite automata minimization. Context-free grammars, Chomsky normal form, properties of context-free grammars, push-down automata.  <i>Practical classes:</i> Finite automata, regular expressions, finite automata minimization. Context-free grammars, Chomsky normal form, properties of context-free grammars, push-down automata. Lexical and syntax analysis of programming languages – Lex and Yacc tool.				
<b>Literature</b> 1. J. E. Hopcroft, J. D. Ullman, Formal languages and their relation to automata, Addison-Wesley, 1969. 2. M. Sipser, Introduction to the theory of computation, Thompson, Course Technology, 2006. 3. V. A. Aho, R. Sethi, J. D. Ullman, Compilers: Principles, Techniques, and Tools, Addison-Wesley, 1986.				
<b>Number of active teaching hours</b>				Other classes:
Lectures: 0	Practice: 0	Other forms of classes: 1	Independent work: 4	
<b>Teaching methods</b> Consultations, Independent work				
<b>Examination methods (maximum 100 points)</b>				
<b>Exam prerequisites</b>	<b>No. of points</b>	<b>Final exam</b>	<b>No. of points</b>	
Practical classes		Written examination	50	
Tests	50	Oral examination		
Homework		Other		
Seminars				
Project				
<b>Grading system</b>				
<b>Grade</b>	<b>No. of points</b>		<b>Description</b>	

10	$\geq 91$	Excellent
9	81-90	Exceptionally good
8	71-80	Very good
7	61-70	Good
6	51-60	Passing
5	$\leq 50$	Failing