

<b>Study program:</b>	<b>Electrical and Computer Engineering</b>			
<b>Course title:</b>	<b>Digital Systems Design</b>			
<b>Level of study:</b>	<b>Undergraduate studies</b>			
<b>Lecturer(s):</b>	<b>Randić S. Siniša</b>			
<b>Language:</b>	<b>English</b>			
<b>Type of Course:</b>	<b>Elective</b>			
<b>Semester:</b>	<b>Spring</b>			
<b>ECTS:</b>	<b>6</b>			
<b>Prerequisites:</b>	<b>-</b>			
<b>Course objective</b>				
<ul style="list-style-type: none"> <li>- Modern digital circuits and systems design principles;</li> <li>- Modern ASIC and SoC design methodologies;</li> <li>- Hardware description languages (VHDL, System C);</li> <li>- ModelSim hardware modeling tools.</li> </ul>				
<b>Course learning outcomes</b>				
Student can:				
<ul style="list-style-type: none"> <li>- Describe principles of modern digital circuits design;</li> <li>- Differentiate methodologies of modern digital circuits design;</li> <li>- Write simple VHDL hardware models;</li> <li>- Use tools for simulations of digital circuitries (ModelSim).</li> </ul>				
<b>Course contents</b>				
<i>Theoretical classes</i>				
<ul style="list-style-type: none"> <li>- Introduction to digital systems design.</li> <li>- Digital circuits technologies.</li> <li>- Integration possibilities and future trends.</li> <li>- ASIC and SoC design.</li> <li>- Switching characteristics, delay, fan in, fan out, logical structures, combinational and sequential circuits.</li> <li>- Design strategies. Clock signal distribution. Low power design. Physical placement.</li> <li>- Subsystem design. Arithmetical blocks.</li> <li>- Testing. Fabrication testing methodologies. Self-testing.</li> <li>- Design tools. Hardware description languages. VHDL. System C.</li> </ul>				
<i>Practical classes</i>				
Modeling in VHDL and System C.				
<b>Literature:</b>				
1.	M. Zwolinski, Digital System Design with VHDL, Pearson, 2004			
2.				
3.				
4.				
5.				
<b>Number of active teaching hours</b>				
Lectures:	Practice:	Other:	Miscellaneous:	Study examination:
2	1	0		
<b>Teaching methods</b>				
Interactive teaching methods with practical demonstrations.				
<b>Assessment methods (maximum 100 points)</b>				
<b>Exam prerequisites</b>	points	<b>Final exam</b>	points	
Activity during lectures	5	Written examination	20	
Practical classes	15	Oral examination	20	
Colloquiums	30			
Seminars	10			