

Name: Digital Systems		NEPTUN-code: <i>NIXDROEBNE</i>	Number of periods/week: full-time: 2 lec + 0 sem + 2 lab
Credit: 4 Requirement: mid-term mark		Prerequisite: <i>NIEELOEBNE</i> Electronics	
Responsible: András MOLNÁR, Ph.D.	Position: associate professor, habil.	Faculty and Institute name: John von Neumann Faculty of Informatics Institute of Applied Informatics	
Way of assessment: - written exam			
Competences			
Course description:			
<p>Student will learn the basic principles of digital electronics required for computer engineers. They will get familiar with the most important construction elements of digital systems, the advancement of logic families, and the application aspects of use of construction elements in the realization of complex tasks. The course provides information how to write effective code in VHDL. The syntax, language components, basic structures and hardware development approach are all covered during the lectures. Finite state machines and synchronous system design are in focus due to their importance. Furthermore, the student learn about the basics of semiconductors. The physical phenomena of operation of diodes and transistors are presented. The possibly realization of basic digital components are discussed in chronological order. DDL, RTL, DTL and TTL systems are explained. The most important transistor families (bipolar, FET, CMOS, etc.) are presented and compared through their advantages and disadvantages.</p>			
Literature			
<p>Henriette Steiner – Komoróczy Dr., Zsolt Kertész: Electronics, 2015-2017 (in Hungarian) István Matijevics: INTERACTIVE DIGITAL TECHNOLOGY COLLECTIONS, Digitális Tankönyvtár, 2011 (in Hungarian, electronic notes) Henriette Steiner – Komoróczy Dr., Zsolt Kertész: Digital Systems, 2015-2017</p>			