DESCRIPTION OF STUDY MODULE*

Study programme	**Applied Informatics and Programming**		
Study module	**COMPUTER ARCHITECTURE**	**Credits in total**	**4**

Learning outcomes
– He(she) knows and are able to use modern computer architecture elements and systems development and maintenance tools (programs). – He(she) knows how to explain the varying complexity of the hardware function, principles of operation and features. – Acquired skills to specify, design of computer architecture components according to customer requirements, apply the latest standards. – Acquired skills to create and install the microprocessor software. – Self studying visual material, examine samples.
Aims of study module
The purpose of the study subject is to familiarize the students with physical, logical and programming level of computer architecture, microprocessors of the computers, sub-systems of memory and input-output, the creation technicalities of controllers and drivers for exterior devices and to teach the students how to apply analysis of solutions, programming and testing methods of computer architecture.
Annotation of a study module
The subject of computer architecture provides knowledge about physical, logical and programming level of computer architecture. The students are familiarized with microprocessors of the computers, sub-systems of memory and input-output, the creation technicalities of controllers and drivers for exterior devices. The students are taught how to solve the computer architecture tasks by applying various methods of analysis, programming and testing (lab works, modelling, prototyping etc.).
Topics of the subject
1. Introductory lecture 2. The computer system resources organization 3. The processor architecture 4. Operating systems and management programs 5. The processor networks 6. Peripheral device management 7. Media computer systems architecture 8. The computer memory architecture 9. Assembler‘s and processor management 10. The system bus architecture 11. The embedded microprocessor systems, microcontroller programming 12. Open electronics device‘s architecture.
Procedure for assessment of knowledge and competences
Applicable criterion: ten-point scale, and the cumulative assessment scheme: practical laboratory work (folder method) is 20%, the midterm works - 10% every, the project (microcontroller device design and layout) - 10% and 50% of the final exam assessment, which is calculated by the weighted average method: $G = L*0,2 + K1*0,1 + K2*0,1 + P*0,1 + E*0,5.$ Subject final rating calculated only if all the tasks and works completely done and evaluate the positive point.
Main literature
1. Vytautas Urbanavičius. (2007) Kompiuteriai ir jų architektūra: vadovėlis aukštosioms mokykloms. Vilnius, “Technika”. 2. William Stallings. (2013) Computer Organization and Architecture: Designing for Performance. 9th ed., MacMillan. 3. Kižauskienė, L., Toldinas, J. ir kt. (2012) Kompiuterių architektūra. Virtualios architektūros. Kaunas, Technologija.

* Short form