

## DESCRIPTION OF STUDY MODULE\*

**Study programme**

**Applied Informatics and Programming**

**Study module**

**COMPUTER HARDWARE**

**Credits in  
total**

**4**

### Learning outcomes

- He (she) is able to explain the basic computer hardware, define the purpose and functions (operating principles).
- He (she) is able identify various computer hardware structures, to specify systems and elements capabilities, strengths and weaknesses.
- He (she) knows how to use modern computer hardware elements and design tools (programs).
- He (she) knows how to specify and design components, in line with the latest market standards.
- He (she) has ability to independently create projects of the not complicated computer hardware layouts.
- Self-study video material, examine samples.

### Aims of study module

The purpose of the study subject is to provide knowledge about the structure of various computers and their parts, operating principles, teach the students about the application of the standard methods of computer hardware analysis, project making and testing, provide knowledge on how to solve problems and purposefully strive to achieve results. Students are taught individually or in groups about how to create and describe the computer hardware functional elements: input – output and transmission devices, controllers, inverters, meters etc.

### Annotation of a study module

In the computer hardware class, the students learn about the structure of the technical part of the computers and operating principles. Students are taught to apply the standard methods of computer hardware analysis, project making and testing, to know how to identify and solve problems, and purposefully strive to achieve results. Students are taught individually or in groups how to create and describe the computer hardware functional elements: input – output and transmission devices, controllers, inverters, meters etc. This computer hardware class is preparatory class into the course of computer architecture.

### Topics of the subject

1. Computer hardware concepts
2. Main (host key, system box) unit
3. Computer components
4. Computer peripherals
5. Computer processors (microprocessors)
6. Computer memories
7. System bus, essential characteristics
8. Computer hardware components installation, adjustment, troubleshooting

### 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 (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. P. Kanapeckas, E. Kazanavičius, A. Mikuckas. (2008). Kompiuterių elementai. KTU leidykla Technologija.
2. William Stallings. (2013) Computer Organization and Architecture: Designing for Performance. 9th ed., MacMillan.
3. Harris & Harris. (2012) Digital Design and Computer Architecture, 2nd Edition. Morgan Kaufmann, 712 p.

---

\* Short form