

## Computers and Computer Architecture subject rules

Total evaluation (TE  $\leq$  10) calculated by:

$$\text{TE} = 0.2 \text{ LW} + 0.2 \text{ ER} + 0.6 \text{ EX} + 0.05 \text{ AT}$$

LW – laboratory works ( $\leq 10$ )

ER – exercises ( $\leq 10$ )EX – exam ( $\leq 10$ )

AT – attending of lectures ( $\leq 10$ )

For attending of lectures additional points (AT), added to total evaluation (TE):

AT = attended lectures / total lectures. Additional points are added only when not less than 70 % of lectures were attended.

There are total of 6 laboratory works. Maximum evaluation of laboratory work is 10 points. Report for laboratory work should be presented and defended. Minimum accepted evaluation is 5 points.

During exercises, first 20 min students are solving problems, next the theory is presented for the next exercises (evaluation of exercises is also presented).

When re-passing the exam, only the last evaluation is valid.

Acquainted with the rules:

[illegible]

## Theoretical Topics

1. Introduction
2. Computer evolution and performance
3. Top level view of computer function and interconnection
4. Cache memory
5. Internal memory
6. External memory
7. Input Output
8. Operating system support
9. Arithmetic
10. Instruction sets characteristics
11. Instruction sets addressing modes
12. CPU structure and function
13. RISC
14. Superscalar

## Exercises

1. Introduction. Number systems and codes.
2. Arithmetical operations.
3. Basic logic functions.
4. Hypothetic computer functionality.
5. Internal memory structure.
6. Memory error correction (Hamming code).
7. Cache memory structure.
8. Addressing modes.
9. Register management in RISC processor.
10. Superscalar processors.

## Book

W. Stallings, Computer Organization and Architecture (6<sup>th</sup> edition) Prentice Hall 2003  
W. Stallings, Computer Organization and Architecture (8<sup>th</sup> edition)