# Computer Laboratory 2 (ECTS 2)

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The course is taught both in Serbian and Hungarian languages. This course has two practical lessons per week.

This course covers basics about digital images. The goal of the course is to introduce students to basic concepts concerning digital images such as pixels, spatial and amplitude resolution. Types of digital images are discussed in detail. Differences between .jpg, .bmp, .png, etc. types are explained. Basic operations on digital images in the spatial domain such as brightening, gamma-correction, histogram equalization are discussed. Image filtering in the spatial domain is explained. Average, weighted average and order statistic filters (Min, Max, Median) are discussed. Image transforms are introduced. JPEG compression is explained in detail.

The course covers the following topics:

1. Raster and vector graphics

2. Image forming on computers

3. Concept of digital images. Spatial and amplitude resolution

4. Image enhancement in the spatial domain

5. Digital image transform. Gamma correction

6. contrast improvement of digital images. Histogram equalization

7. Bit plane slicing of digital images

8. Digital image restoration

9. Noise in digital images

10. Digital image filtering

11. Convolutional filtering methods

12. Order statistic filters. Min, Max and Median filters

13. Digital image compression

14. JPEG compression

Aims of the course:

After completing the course, students should understand the concepts of digital images. Students should be capable of performing simple operations on digital images. Students should have the ability to modify the digital images in order to achieve a desired goal, such as filtering, contrast improvement, or image compression.