

# Digital Image Processing - Lecture Syllabus

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## **Abstract**

This document contains lecture syllabus of “Digital Image Processing” at the University of Prishtina, Faculty of Electrical Engineering, Computer Science Department.

## **1 Introduction**

One of the reasons for the large popularity of the Internet is without doubt the possibility to integrate multimedia, especially images and animations, on web pages. Now days low-cost digital cameras, made possible to introduce the image processing technology cheaply, almost everywhere (Internet, bank security, visual industrial inspection, traffic surveillance, biometric identification, etc). The amount of digital image data has been growing every day. The need for intelligent processing has gain in relevance, just to mention image archiving and retrieval, image compression, image analysis for industrial inspection, robot navigation etc. There is an immense need to introduce this technology to the computer science students.

## **2 Subject of the course**

Introduction in Image Processing. Basic methods and data structures for digital image processing are presented in order to extract information out of digital images. The lecture provides a set of basic methods, which can be applied and tested on real imagery in the practical course. The goal is to provide the students with the basic knowledge of digital image processing so that they will be able to understand the relevant scientific literature. See the extra sheet for more details.

### 3 Content of the course

#### Lecture

The following topics will be introduced:

	Topics	Duration
1.	Introduction	2h
2.	Digital Images and its properties	3h
3.	Data structures for image analysis	2h
4.	Image pre-processing	3h
5.	Segmentation	3h
6.	Introduction to Image Analysis	2h
7.	Binary images, Mathematical Morphology	2h
8.	Radiometric and geometric transformation	2h
9.	Image data compression	2h

Total of lecture units 20.

#### Exercises

Lab exercises in teams of 2 – 3 participant. Total unit of lab exercises 17h

#### Place and Time

**Place:** Building of Electrical Engineering.

**Date:** 15th of December 2003.

**Duration:** 2 weeks.

#### Evaluation

Oral exam (60%) and evaluation of the exercise solutions (40%).