COURSE DESCRIPTION

1. GENERAL

SCHOOL	MUSIC AND AUDIOVISUAL ARTS		
DEPARTMENT	AUDIO AND VISUAL ARTS		
LEVEL	Undergraduate		
COURSE CODE	VIS832	**SEMESTER**	8th
COURSE TITLE	Digital Image Processing I		
INDEPENDENT TEACHING ACTIVITIES		**WEEKLY TEACHING HOURS**	**ECTS**
Lecture, Tutorial		4	7
COURSE CATEGORY	Specific Background		
COURSE TYPE	Elective		
PREREQUISITES	TEC414		
LANGUAGE OF TEACHING and EXAMINATIONS	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES (In English)		
URL	https://avarts.ionio.gr/en/studies/undergraduate/courses-descriptions/vis832/		
ECLASS	https://opencourses.ionio.gr/modules/contact/index.php?course_id=273		

2. TEACHING RESULTS

Teaching Results

To provide a basic understanding of the fundamental principles underlying the formation and properties of digital images. To familiarise students with basic processing algorithms and to promote their problem-solving skills in the field.

General Skills

- Seek, analyze and synthesize data
- Autonomous work
- Team work
- Project design and management
- Freedom of thought

3. CONTENT

An introductory course on the principles of digital image acquisition and data-domain processing including sampling, quantisation, tonal and geometric transformations, filtering, edge detection and histogram-based methods.

1st Week Introductory concepts of image acquisition and digitisation
2nd Week Sampling, quantumism. Resolution, bits/level, aspect ratio
3rd Week Linear tonal transformations
4th Week Non-linear tonal transformations
5th Week Linear geometric transformations
6th Week Non-linear geometric transformations
7th Week Linear filter fundamentals
8th Week Linear filter applications and examples
9th Week Non-linear filters
10th Week Differential filters and applications
11th Week Edge detection
12th Week Histogram-processing fundamentals and histogram equalisation
13th Week Hstogram matching and histogram-based processing

4. TEACHING AND LEARNING METHODS - EVALUATION

TEACHING METHOD	Lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Enhanced by multimedia content. The learning process is supported by the asyncrhonous e-learning platform e-class.
TEACHING STRUCTURE	Activity — Semester Workload Lectures — 39 Tutoring Lectures — 13 Literature Study and Analysis — 80 Practice and Preparation — 43 **Course Total** (ECTS: 7) — **175**
EVALUATION OF STUDENTS	Written examination paper

5. BIBLIOGRAPHY

(in Greek)

Ν. Παπαμάρκος, Ψηφιακή Επεξεργασία και Ανάλυση Εικόνας

Ι. Πήτας, Ψηφιακή Επεξεργασία Εικόνας