COURSE OUTLINE

1. GENERAL

SCHOOL	ENGINEERING SCHOOL		
DEPARTMENT	ARCHITECTURE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	ARC_211	**SEMESTER OF STUDIES**	1°
COURSE TITLE	DESCRIPTIVE AND PROJECTIVE GEOMETRY 1		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	2	2

COURSE TYPE	Field of Science
PREREQUISITE COURSES:	There are typically no prerequisite courses. However, it is extremely useful for students to have knowledge of 3D Euclidean Geometry.
TEACHING AND ASSESSMENT LANGUAGE:	Greek.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/ARCH506/

2. LEARNING OUTCOMES

Learning outcomes

At the end of the course the students are expected to be in position to design representations and images of 3D objects by applying scientifically based methods of representation that are nowadays used by engineers and not by applying simple practical methods.
In this way the students will be able:
1. To cover adequately the needs of representation of any object on their field of interest.
2. To realize the methods of creation of any image that appear on a computer screen when CAD programs are used.
3. To understand the geometrical relations in space of the object
as well as
4. The geometrical relations between 3D and 2D representation of the objects.
5. In addition the students with the principals of the Synthetic Projective Geometry should have acquired, above the basic knowledge, the understanding of Representation Methods, as a whole with a common starting point.

General Abilities

By the end of the course the student would be able to analyze and compose given information.
To enrich his or her inductive reasoning.

To adjust in new situations.
To work autonomously and in groups.
To produce new ideas.
Practicing criticism and self-criticism.

3. COURSE CONTENT

An overview of the course can be summarized as follows:

A. GENERALLY ABOUT PROJECTIONS
1. Central Projection
2. Parallel Projection
3. Orthogonal Projection

B. METHODS OF REPRESENTATIONS
1. Representation on two planes (Method of Gaspard Monge)
2. Axonometry.
3. Perspective.
4. Projection with elevations.

C. APPLICATIONS OF THE METHODS
1. Polyhedrons are represented using the above methods.
2. Representation of geometrical objects with the methods of representation.
3. Transformation of the representation of an object to another means of representation
4. Sections of solids and surfaces
5. Developments
6. Applications of methods of representation on real problems that occur on practicing the profession of Architects.

D. ELEMENTS OF RPOJECTIVE GEOMETRY
1. Principals of Synthetic Geometry which are applied in designing created with Representation Methods. Basic theorems of Projective Geometry.
2. Analysis of architectural issues that obtain specific principals.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

For the final	In the classroom. The course is conducted with a combination of lectures and design topics. The students are required to submit every week design exercises. The presence of students in the lectures is mandatory.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	1. e-class and http://www.opencourses.gr/opencourse.xhtml?id=15551&ln=el 2. Also, during lectures 3d animated video are presented.
TEACHING ORGANIZATION	

Activity	***Semester Work load***
Lectures	26
Homework	24
Total number of hours for the Course	50

STUDENT ASSESSEMNT	1. Through quick and simple exercises given during the lecture. 2. Small weekly projects

	3. Project of the semester 4. Final exam

5. RECOMMENDED LITERATURE

In Greek

1. «Descriptive Geometry», George E. Lefkaditis – George M. Exarchacos
2. «Descriptive Geometry», Markatis Stylianos
3. «Descriptive Geometry», Georgiou Dimitris