COURSE OUTLINE

(1) GENERAL

SCHOOL	ENGINEERING SCHOOL		
ACADEMIC UNIT	CIVIL ENGINEERING DEPARTMENT		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	2302511	SEMESTER	2
COURSE TITLE	DESCRIPTIVE GEOMETRY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	WEEKLY TEACHING HOURS	CREDITS
Lectures	2	5
Laboratory exercises	3	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Special background, skills development
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	
COURSE WEBSITE (URL)	http://vplace.teipir.gr/2302511

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Upon completion of the course, students will be able to:

1. Recall the fundamental concepts of Descriptive Geometry.

2. Relate and apply the theory and principles of Descriptive Geometry methods as to represent the three-dimensional objects in two-dimensional views.

3. Perform the tools and techniques as to solve practical problems in engineering profession.

4. Analyze the problems and produce solutions through visualization and reasoning.

5. Interpret and compare the objects' volumes and geometric forms through the information given in the drawings.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*……*
Production of new research ideas	*Others…*
	…….

-Search, analysis and synthesis of data and information, using the necessary geometric representation principles.
-Creative thinking to solve representation problems.
-Work autonomously as well as in teams.

(3) COURSE CONTENT

Theory

1-2. Monge system : Parallel and orthogonal projection (prisms, pyramids).
3-4. Monge system: Parallel and orthogonal projection (surfaces, cylinder, cone, sphere, hyperboloid paraboloid)
5-6. Axonometric projection.
7-8-9. Perspective.
10. Intersection of surfaces.
11-12. One-view representation. Roof surfaces.

Laboratory

1. Orthogonal projection – prisms.
2. Orthogonal projection – pyramids.
3. Orthogonal projection – cylinder.
4. Orthogonal projection – cylinder helix.
5. Orthogonal projection – cone.
6. Axonometric projection –I.
7. Axonometric Projection –II.
8. Two-point perspective –I.
9. Two-point perspective –II.
10. Intersection of cylinders.
11. Roofs –I.
12. Roofs –II, III.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Lectures and laboratory exercises, face-to-face.
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Presentations .ppt
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	

Activity	*Semester workload*
Lectures	26
Laboratory work	39
Homework and study	60
Course total	*125*

STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	Evaluation language: Greek. <u>Evaluation procedure</u> <u>THEORY</u> -written examination (80%), -small scale exercises during the lecture's time (20%). <u>LABORATORY</u> -Written examination. -Laboratory work. (quality and quantity assessment) All criteria are accessible to the students through website.

(5) ATTACHED BIBLIOGRAPHY

Main sources in Greek language

Leukaditis G. (2006), *Representation Methods*, Athens.
Leukaditis G. (2010), *Perspective*, Athens.
Markatis St. (2014), *Descriptive Geometry*, Athens.

Main sources in foreign languages

- Aubert J. (2003), *Dessin d' Architecture: à partir de la Géométrie Descriptive*, Paris: editions de la Villette.
- Band E. (2011), *Lehrbuch der Darstellende Geometrie*, 2 Bände, Paderborn: Salzwasser Verlag.
- Faure A. (2009), *Géométrie descriptive: Du point aux surfaces de révolution et aux ombres*, Paris: Ellipses.
- Gill R. (1975), *Creative Perspective*, London: Thames and Hudson.
- Hohenberg Fr. (1961), *Konstruktive Geometrie in der Technik*, 2te Auflage, Wien: Springer Verlag.
- Holiday-Darr K. (1998), *Applied Descriptive Geometry*, 2nd edition, USA: Delmar Publishers.
- Low David Allan (2007), *Practical Solid or Descriptive Geometry*, 2 volumes, USA: Watchmaker Publishing.
- Nickel H. - Fucke R. - Kirch K. (2006), *Darstellende Geometrie für Ingenieure*, Leipzig: Fachbuchverlag Leipzig.
- Woolf Solomon (2007), *An Elementary Course in Descriptive Geometry*, USA: Watchmaker Publishing.