COURSE OUTLINE

(1) GENERAL

SCHOOL	ENGINEERING SCHOOL		
ACADEMIC UNIT	CIVIL ENGINEERING DEPARTMENT		
LEVEL OF STUDIES	UNDER GRADUATE		
COURSE CODE	2314552	SEMESTER	4
COURSE TITLE	Computer Aided Design		

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	0	
Laboratory	4	
		4 (total)
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*	Specialized Knowledge, skills development
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek (official)- English (optional)
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	http://opencourses.gr/opencourse.xhtml?id=2589&ln=el

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*

Students at the end of their studies have a depth knowledge of geometric and stereometric concepts and are able to create not only two-dimensional drawings and three-dimensional models.
Also delve into solid processing techniques in order to be able to formulate the final model.
Should students in the end of the semester to be able to integrate digital not only an architectural project digital and the 'then transfer to the paper, two-dimensional and three-dimensional form, but they have to apply to their three-dimensional model materials, light from different light sources, etc. in order to creating proper presentations.
Familiar with the three-dimensional design through PC can very quickly create illustrations that 'unlike ordinary design performance and imaging methods that do not use any software.
In 'conclusion should be able become familiar (in minimum time) to the usage of any design program and use it as a tool to produce any architectural project.
Upon completion of the course, students will have:
In depth knowledge of geometrical and stereometrical meanings and implementation of those concepts (especially stereo-metrical) through designing of two and three dimension models.
Knowledge and drawing skills of two-dimensional and three-dimensional shapes
In depth knowledge of CAD programs and the ability to select the proper software according to their needs
Ability to create realistic images of their model and present their project properly.
The students after this course should be able to:

1. Understand any shape
2. Analyze any geometrical object to the sub objects that makes it up and recreate the model from them.
3. Distinguish stereometrical models knowing their properties.
4. Synthesize 3d model from 3d objects

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

Skills relating to the Computer aided design especially using "open" design programs (programs that allow user axle system).
Knowledge of the operations and the similarities of the majority of design programs to be able to choose (if applicable) the proper one.

Ability to dialogue, criticism – self evaluation.
Working in a multidisciplinary environment: Apart from the ability to choose the appropriate software-tool forms synthesis capacity (solid shapes) for the creation of structures.

In 'conclusion they are able to:
1. Individual project work and teamwork
2. Generating new ideas, Generating free creative and inductive thinking
3. Critical thinking, self-criticism – self-esteem
4. Adjustment to new situations

SYLLABUS

This field is covered by the following laboratory exercises:
1. Introduction to CAD environment.
2. Description of CAD software, explanation of concepts related to CAD design.
3. Introduction to a specific software's environment.
4. Basic commands: program interface, coordinate system, line design.

Designing in two dimensions

5. Drawing tools and depiction control on the screen, simple objects drawing such as line segments, circles, arcs, points, polylines, manufacturing lines and general design "entities" related to object.
6. Designing methods and project organization :
7. Methods to create "library" files that both minimize the time of drawing up of a project, and the quality of the final result.
8. Create layers and use them to design through CAD programs.
9. Drawing text, dimensions and design stripe: Format text, create design type and dimension design.
10. Printing: Set print parameters of a defined scale.
11. Creating uniform design entities, entities with properties, importing entities and individual files in the project, external references:
12. Creation of design entities

Creating and handling three-dimensional models

13. Introduction to three dimensions: Convert 2D floor plan in 3D, Isometric and axonometric view Create multiple views.
14. Axles System Manager.
15. Facades and sections creation: Creation of solids and surfaces.
16. Modification procedure into three dimensions: Removing and adding solids, rotate, move, and copy objects in the X,Y and Z axis
17. Photorealistic rendering three-dimensional models, creating views and sections: Introduction shadows, light source, hide behind lines realistic presentations.

The lab exercises follow a specific course method. In each course which processed by the students within laboratory under constant monitoring and guidance of the teaching staff. In every exercise students consolidate their previous knowledge's and apply the newer.

(2) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Lectures, laboratories , distance learning methods
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education,*	Teaching using ICT, Laboratory Education using ICT, Communication and Electronic Submission

communication with students	
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*	The teaching is carried out in the laboratory with lectures during the course. The teaching method used is argumentative constructivism with obstetric method elements, where a learning line followed during which the student progresses from the simplest to the most complex (after completing the previous step) obtaining in this way not only confident and exploratory skills. The teacher sets goals and with interactive discussion (directing students) led both to the appropriate selection method, as and to the implementation process In this way the assistance of instructor constantly reduced giving freedom to the student and intervening only to boost confidence Made four lectures per lesson there is corresponding application time

Activity	*Semester workload*
Lectures	
Laboratories	52
Preparation of Individual Project (optional)	13
Study	35
Summary	100

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.*	Language evaluation: Greek (English for "Erasmus" students) The examination beyond the merit process develops students critical thinking that assessed to implementation of an unknown (to them) issue. Laboratory Examination: 100% (90% if the student choose to create a project) Student project (optional): 10%

(3) ATTACHED BIBLIOGRAPHY

Hellenic (Greek)

1. AutoCad 2009 Omura George Giourdas M.
2. Work with AutoCad 2009 Yiannis Th. Kapos Clidarithmos
2. Work with AutoCad 2012 Yiannis Th. Kapos Clidarithmos
3. 3D AutoCad 2008 Kordonias Vasilios Clidarithmos
4. Learning guide to AutoCad 2008 και 2007 Kordonias Vasilios Clidarithmos

English

1. AutoCAD 2010 and AutoCAD LT 2010 Bible, Ellen Finkelstein, ISBN: 9788126526451

2. The Architect's Guide to the U.S. National CAD Standard, Dennis J. Hall
3. Mastering AutoCAD 2012 and AutoCAD LT 2012, George Omura
4. CADD PRIMER, Vijay Duggal