COURSE OUTLINE

1. GENERAL

SCHOOL	ENGINEERING SCHOOL		
DEPARTMENT	ARCHITECTURE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	ARC_E504	**SEMESTER OF STUDIES**	$8^{o +} 10^{O}$
COURSE TITLE	Special Topics in Geometry & Digital Architecture		

INDEPENDENT TEACHING ACTIVITIES	TEACHING HOURS PER WEEK	ECTS CREDITS
Lectures	4	4
laboratory assignments and design projects	2	

COURSE TYPE	Elective
PREREQUISITE COURSES:	There are no prerequisite courses
TEACHING AND ASSESSMENT LANGUAGE:	Greek. In case foreign students attend the course teaching may be however performed in English.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/ARCH322/

2. LEARNING OUTCOMES

Learning Outcomes
1. Develop an understanding of basic and advanced geometric concepts that are   encountered in architectural design and applications
2. Develop skills with geometric transformation processes .
3. Develop an understanding of concepts and design methods that utilize state of the art applications of digital media and technologies.
4. Develop practical skills with computational methods and software appropriate for architectural design

General Abilities

 Develop an understanding of concepts and design methods that utilize state of the art applications of digital media and technologies.

3. COURSE CONTENT

Course lectures cover a wide range of topics related to geometric concepts   and digital applications architecture including both theoretical and technological issues.

Lab projects address digital media and methods for the development of 3D parametric models that require the understanding and skills in using surface and solid geometry as well as parametric processes.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face to face: Lectures and laboratory work The course instruction combines lectures, weekly assignments and a semester design project. Γίνεται επίσης εκμάθηση εργαλείων παραμετρικών state-of-the-art software όπως το Grasshoper, Processing, Generative Components εργασίες. Lab projects address digital media topics and methods for developing 3D parametric models that require skills in using surface and solid geometry. Students acquire skills in state of the art parametric software such as Grasshoper, Processing, Generative Components
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Learning processes is supported by the e-class platform . For the completion of class assignments and project, students need to use state-of-the-art software as well as digital fabrication lab equipment and processes.

TEACHING ORGANIZATION	Activity	Semester Work load
	Lectures (4 conduct hours per week x 13 weeks)	56
	Laboratory assignments +semester project	44
	Total number of hours for the Course	**100 hours (total student work-load)**

STUDENT ASSESSEMNT	Student assignments- class participation 25% Design Semester Project 75% The final project should include a scaled model of the proposed structure, powerpoint presentation, and a folder with digital pictures and animations The evaluation of the projects is based on the design quality in combination with the proper use of geometric concepts and parametric processes.

5. RECOMMENDED LITERATURE

1. Pottmann, H., Asperl , A. Hofer , M., Kilian, A., Bentley D.(Editor), (2011): *Architectural Geometry*, 1st Edition , Bentley Institute Press, Exton, Rensylvania USA.
2. Jabi, W. (2013): *Parametric Design for Architecture*, Lawrence King Publishing, London, GB.
3. Lynn, G. (1999): *Animate Form*, Princeton Architectural Press, New York, USA.
4. Pottmann, H., Asperl , A. Hofer , M., Kilian, A., Bentley D.(Editor), (2011): *Architectural Geometry*, 1st Edition , Bentley Institute Press, Exton, Rensylvania USA.
5. Terzides K. (2006): *Algorithic Architecture*, Rutledge, New York, USA.
6. Woodbury, R. (2010) *Elements of Parametric Design*, 1st Edition, Rutledge, New York, USA.