

COURSE OUTLINE

1. GENERAL

SCHOOL	ENGINEERING SCHOOL		
DEPARTMENT	ARCHITECTURE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	ARC_E504	SEMESTER OF STUDIES	8o
COURSE TITLE	Special Topics in Geometry & Computational Design		
INDEPENDENT TEACHING ACTIVITIES	TEACHING HOURS PER WEEK	ECTS CREDITS	
Lectures	4 (lect.)	4	
laboratory assignments and design projects	2 (lab.)		
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

<p>Learning Outcomes</p> <ol style="list-style-type: none"> 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
<p>General Abilities</p> <ol style="list-style-type: none"> 1. Develop an understanding of concepts and design methods that utilize state of the art applications of digital media and technologies.

3. COURSE CONTENT

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

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<p>TEACHING METHOD</p>	<p>Face to face: Lectures and laboratory work The course instruction combines lectures, weekly assignments and a semester design project.</p> <p>Γίνεται επίσης εκμάθηση εργαλείων παραμετρικών state-of-the-art software όπως το Grasshoper, Processing, Generative Components εργασίες.</p> <p>Lab projects address digital media topics and methods for developing 3D parametric models that require skills in using surface and solid geometry.</p> <p>Students acquire skills in state of the art parametric software such as Grasshoper, Processing, Generative Components</p>									
<p>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</p>	<p>For the completion of class assignments and project, students need to use state-of-the-art software</p>									
<p>TEACHING ORGANIZATION</p>	<table border="1"> <thead> <tr> <th data-bbox="656 779 1081 814"><i>Activity</i></th> <th data-bbox="1081 779 1365 814"><i>Semester Work load</i></th> </tr> </thead> <tbody> <tr> <td data-bbox="656 814 1081 877">Lectures (4 conduct hours per week x 13 weeks)</td> <td data-bbox="1081 814 1365 877">56</td> </tr> <tr> <td data-bbox="656 877 1081 940">Laboratory assignments +semester project</td> <td data-bbox="1081 877 1365 940">44</td> </tr> <tr> <td data-bbox="656 940 1081 1039">Total number of hours for the Course</td> <td data-bbox="1081 940 1365 1039">100 hours (total student work-load)</td> </tr> </tbody> </table>		<i>Activity</i>	<i>Semester Work load</i>	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)
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<p>STUDENT ASSESSEMNT</p>	<p>Student assignments- class participation 25%</p> <p>Design Semester Project 75%</p> <p>The final project should include a scaled model of the proposed structure, powerpoint presentation, and a folder with digital pictures and animations</p> <p>The evaluation of the projects is based on the design quality in combination with the proper use of geometric concepts and parametric processes.</p>									

5. RECOMMENDED LITERATURE

<ol style="list-style-type: none"> <li data-bbox="285 1421 1279 1484">1. <u>Pottmann</u>, H., <u>Asperl</u> , A. <u>Hofer</u> , M., <u>Kilian</u>, A., <u>Bentley</u> D.(Editor), (2011): <i>Architectural Geometry</i>, 1st Edition , Bentley Institute Press, Exton, Rensylvania USA. <li data-bbox="285 1484 1328 1516">2. <u>Jabi</u>, W. (2013): <i>Parametric Design for Architecture</i>, Lawrence King Publishing, London, GB. <li data-bbox="285 1516 1175 1547">3. <u>Lynn</u>, G. (1999): <i>Animate Form</i>, Princeton Architectural Press, New York, USA. <li data-bbox="285 1547 1073 1579">4. <u>Terzides</u> K. (2006): <i>Algorithmic Architecture</i>, Rutledge, New York, USA. <li data-bbox="285 1579 1317 1610">5. <u>Woodbury</u>, R. (2010) <i>Elements of Parametric Design</i>, 1st Edition, Rutledge, New York, USA.
