Course unit title:	**DIGITAL TOOLS III**
Course unit code:	**APX311**
Type of course unit:	**Compulsory**
Level of course unit:	**Diploma Degree of Architect - Engineer**
Year of study:	**3**
Semester when the unit is delivered:	**5 (Fall)**
Number of ECTS credits allocated:	**5**
Name of lecturer(s):	**Charis Solomou**
Learning outcomes of the course unit:	1. Ability to create architectural designs that satisfy both aesthetic and technical requirements 2. Understanding of the methods of investigation and preparation of the brief for a design project 3. Ability to work with advanced geometry software 4. Understanding of the connection between mathematics and programming
Mode of delivery:	Face-to-face

Prerequisites:	APX212	Co-requisites:	None

Recommended optional program components:	None
Course contents:	This course offers students an advanced knowledge of 3d modelling techniques by exploring new shapes and materials in architectural design. The course also provides students to experiment advanced geometric concepts using parametric design method, by generating complex forms from simple geometric rules. Finally, the course will help students to combine their design ideas with representation tools like rendering and animation techniques.
Recommended and/or required reading:	
Textbooks:	• **Designing for a digital world**, Leach Neil, Wiley-Academy, Chichester 2002. • **Hybrid space new forms in digital Architecture**, Zellner P., Thames & Hudson 2000. • **Hybrid Space: New Forms in Digital Architecture**, Zellner P., Rizzoli International Publications 1999. • **The Grasshopper Primer – Second Edition**, Andrew Payne & Rajaa Issa, Liftarchitects 2009.
References:	• Generative Algorithms using Grasshopper, Zubin Khabazi free download in pdf format from: http://www.grasshopper3d.com/page/tutorials1 • Generative Algorithms, Concepts and Experiments, Weaving, Zubin Khabazi, free download in pdf format from: http://www.grasshopper3d.com/page/tutorials-1 • Generative Algorithms, Concepts and Experiments, Porous Structures, Zubin Khabazi ,free download in pdf format from: http://www.grasshopper3d.com/page/tutorials-1 • Essential Mathematics for computational design – Second Edition, Rajaa Issa, Robert McNeel & Associates, free download in pdf format from: http://download.rhino3d.com/en/Rhino/5.0/EssentialMathematicsSecondEdition/
Planned learning activities and teaching methods:	The taught part of the course is delivered to the students by means of lectures, conducted with the help of computer presentations. Lecture notes and presentations are available through the web for students to use in combination with the textbooks. Laboratory work is carried out on the laboratory's computers. During laboratory sessions, in the beginning of every module, students work on daily exercises in parallel with the instructor. Through this process students develop the essential skills to apply on their coursework. Before the end of every coursework students have ample time for face-to-face sessions with the instructor for discussion and possible questions.
Assessment	• Laboratory Work: 20%

methods and criteria:	• Coursework Presentation: 30% • Final Coursework: 50%
Language of instruction:	Greek English offered for Erasmus Students
Work placement(s):	No