

MODULE OUTLINE

1. GENERAL

UNIVERSITY	UNIVERSITY OF THESSALY		
SCHOOL	SCHOOL OF TECHNOLOGY		
DEPARTMENT	FORESTRY, WOOD SCIENCES & DESIGN		
LEVEL	UNDERGRADUATE		
MODULE'S CODE	ΞΥ921	SEMESTER	8 ^h
MODULE TITLE	PHOTOREALISM & MOTION		
TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORETICAL PART		2	4
TUTORIALS		1	2
LABORATORY			
<i>TOTAL</i>		3	6
TYPE OF MODULE	Scientific		
PREREQUISITE MODULES:	NO		
LANGUAGE OF TEACHING and EXAMINATIONS:	GREEK		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
MODULE'S URL	MATERIAL IS CURRENTLY UPLOADED (NEW MODULE)		

2. LEARNING OUTCOMES

LEARNING OUTCOMES
<p>The aim of the module is, with the help of electronic graphics software, to learn the process of creating 3D electronic models with a realistic display of lighting and texture materials, as well as learning the process of creating 3D animations (3d animation) with the addition of special lighting and movement effects.</p> <p>Upon successful completion of the course, the student will be able to:</p> <ul style="list-style-type: none"> • models using polygons • applies modifiers during modelling • is able to add materials and textures to his models • properly manages the available lighting sources • is able to animate their models • creates complete 3D animations (3d animation)
SKILLS
<ul style="list-style-type: none"> • Creativity by utilising modern technology • Ability to apply a wide range of scientific and technical knowledge related to the product design cycle • Three-dimensional modelling • Mapping materials to 3D models • Introduction of lighting sources • Insert texture into 3D models • Introduction of cameras • Creation of photorealistic video animation

3. MODULE CONTENT

The theoretical part of the course consists of lectures in the form of PowerPoint presentations. Material includes but not limited to introduction to Electronic Graphics, Electronic Graphics workflow, what is photo rendering, 3ds & Vector Images, parallel beam light sources, point light sources, cone-beam light sources, ambient light, lighting parameters, light properties, angle of incidence light, light reflection and scattering, light refraction, polygon modelling geometry representation algorithms, polygon representation, basic material parameters, material maps and mapping, light rendering effects, motion frames and interframes, motion controllers, motion curves.

In the laboratory part of the course, the student first familiarizes himself with the design environment in Electronic Graphics software. Initially, he creates elementary solids and modifies them in order to achieve the desired design result. Familiarizes himself with the use and operation of polygons and learns to use them efficiently during the modelling process. It is trained to match colours, textures and materials to the 3D models it has already created. In order to achieve a realistic display of the models, extensive use is made of the lighting tools so that the student becomes familiar with their use in each case. The last stage of training is completed by animating the designed models using intermediate motion frames, with the aim of creating 3D video animations with photorealistic rendering.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	In-class – physical presence	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	<ul style="list-style-type: none"> • Use of H/Y, ppt slides, projector, and video projection. • Learning process support through the e-class electronic platform • Lab presence to practice in 3D graphics and animation modelling software 	
TEACHING ORGANISATION	ACTIVITY	Semester Workload
	Theory lectures, video screenings related to the subject	26
	Presentations of work - discussion	-
	Laboratory training	13
	Educational visits/ individual practice tasks	60
	Study	51
	Total Module (20 workload hours per credit unit)	150
EVALUATION OF STUDENTS	<p>I. Presentation and project exam (70%) which includes: - Presentation of the project which has been assigned to the students</p> <p>II. Written or oral final exam (30%) which includes: - Short answer questions from all teaching material and carried out.</p>	

5. RECOMMENDED-BIBLIOGRAPHY

- *RECOMMENDED-BIBLIOGRAPHY*

- Gerhard, M., Harper, J., McFarland, J., 2009. Mastering Autodesk 3ds Max Design 2010, Wiley publishing Inc. USA.
- Learning Autodesk 3ds Max Design 2010. Autodesk Inc, 2009.
- Michael F. Ashby , Kara Johnson, Materials and Design, Second Edition: The Art and Science of Material Selection in Product Design, Butterworth-Heinemann; 2 edition
- James D.,Foley, Andries Van,Dam, Steven,Feiner, John F.,Hughes, Computer Graphics: Principles and Practice, Addison-Wesley Professional; 2 edition (August 14, 1995)
- Jennifer O'Connor, Mastering mental ray: Rendering Techniques for 3D and CAD Professionals, Sybex; 1 Pap/Dvdr edition (April 19, 2010)
- Jeremy Birn, Digital Lighting and Rendering, New Riders Press; 2nd edition
- Autodesk 3ds max design 2010 ο επίσημος εκπαιδευτικός οδηγός & dvd, Εκδόσεις Παπασωτηρίου
- International Journal of Computer Aided Design
- Computer Aided Design Journal
- Computer Aided Design and Applications
- Journal of Computer Aided Design and Computer Graphics
- http://www.3dtotal.com/index_tutorial.php?catDisplay=1&p=1&sort=date&order=1&detailsoff=0
- <http://www.3dlessons.com/tutorials/How-to-model-Bathroom-furniture-with-3ds-Max-86749.html>
- <http://tutorialqueen.com/3ds-max-material/3dsmax-3d-fruits-crate-model-tutorial>
- <http://www.freeitsolutions.com/3ds/viewTutorial.aspx?id=3179>