

Course/Subject/Unit Description

1. General Information			
School		School of Design Studies	
Department		INTERIOR ARCHITECTURE	
STUDY LEVEL		Undergraduate	
CODE OF SUBJECT	EA613	SEMESTER	6
SUBJECT TITLE		3D Modeling and Digital Reproduction with Reverse Engineering	
Teaching Content		Weekly (Hrs)	Credits
Lectures, Essays, Design Workshops/Exercises, Design Project – Portfolio of work.		3	3
Type of Subject		Specialty Course (SC)	
PREREQUIRED COURSES		No	
Teaching and Exams Language		Greek	
THE COURSE IS OFFERED TO ERASMUS STUDENTS		Yes	
Course website (URL)			

2. Aims and Objectives – Methods – Skills
a. Learning Outcomes
Upon completion of the course, the students will have understood the reverse relationship that exist between a physical object and its digital CAD (Computer Aided Design) file. The " <i>Reverse Engineering</i> " deals with the possibility of having designs from any 3D component using a 3D laser scanner and a related software. Students will intervene in the digital file and incorporate the results into several applications.
b. Skills
<ul style="list-style-type: none"> • Application of knowledge in practice • Employment of new digital technologies • Autonomous work • Adaptation to new situations and technologies, with the aim of the reverse process

3. Subject Context
<p>The course approaches the possibility to transform a 3D object in a digitally editable file. A part captured with a Laser scanner can be converted to measurable and editable design tool for its subsequent application.</p> <p>An industrial object that should be transformed into production without having the original designs, it could be captured in three dimensions and converted into dynamics surface for digital transformation.</p> <p>A 3D captured object is possible to be digitized and transformed from a sculptural visual approach to a digital file to its manufacturing with a CNC machine.</p>

4. Teaching and learning methods – Evaluation and assessment

<ul style="list-style-type: none"> - Theory and Design Workshops – Main Project Brief/ Site visits - Group Appraisal /Site Analysis - Theory Essay and Design Exercises - Interim Reviews - Project Final Pin Up - Portfolio Hand In. 		
Use of Information and Communication Technologies	Use of CAD software and 3D laser scanner	
Teaching organization	Activity	Semester Credits
	Lectures	20
	Theory Essay	
	Design Workshop and Exercises	20
	Main Design Project	35
	Research and Analysis of Bibliography	
	Total	75
<i>Student assessment</i>	Design in CAD software, Exams, Project	

5. Recommended/ Bibliography

- Βασικές Αρχές Συστημάτων CAD/CAM/CAE, KUNWOO LEE, Εκδόσεις Κλειδάριθμος, 2009, Αθήνα
- Συστήματα CAD/CAM και Τρισδιάστατη Μοντελοποίηση, Ν.Α Μπιλάλης, Ε. Μαραβελάκης, Εκδόσεις Κριτική
- Σχεδιασμός Προϊόντων, Κυράτσης Παναγιώτης, Ευκολίδης Ν., Μηνάογλου Π., Μανάβης Α., Εκδόσεις Τζιόλα, 2021
- Αντωνιάδης Αριστομένης, Μηχανολογικό Σχέδιο, 3η Έκδοση, Εκδόσεις Τζιόλα, 2018
- Μουρούτσος Σ. Μάλλιαρης Γ., Τεχνικό Σχέδιο, Εκδόσεις Τσότρας, 2016
- Simmons C., Maquire D., Manual of Engineering Drawing, 4th Edition, Elsevier, 2014
- Richard G Budynas, Keith J Nisbett, Mechanical Engineering Design, 10th Edition, McGraw-Hill Education, 2014
- Peter R. N. Childs, Mechanical Design Engineering Handbook, Kindle Edition, 2013
- Richard G Budynas, Keith J Nisbett, Shigley’s Mechanical Engineering Design, 9th Edition, McGraw-Hill Higher Education, 2011