

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF FINE ARTS		
ACADEMIC UNIT	DEPARTMENT OF FINE ARTS AND ART SCIENCES		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	ETEΠ526	SEMESTER	5th, 7th
COURSE TITLE	Computer Science for the Arts IV		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>		WEEKLY TEACHING HOURS	CREDITS
Lectures and laboratory exercises		3	3
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Skill Development		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK/ENGLISH		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	https://ecourse.uoi.gr/enrol/index.php?id=3130		

(2) LEARNING OUTCOMES

Learning outcomes <i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i> <i>Consult Appendix A</i> • Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area • Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B • Guidelines for writing Learning Outcomes
Upon successful completion of the course, students will be able to: Describe the basic elements of the Blender interface (versions 4.0–4.2), navigate the 3D workspace, and effectively use the software's modes, tools, and workspaces. Apply basic and complex 3D modeling techniques, utilizing common mesh modeling tools, geometry structures, and the coordinate system. They design and create materials and surfaces using shading techniques, UV mapping, and textures to achieve realistic rendering of objects. Adjust lighting, camera, and render settings to produce high-quality static or animated images (renders).

They prepare and export 3D models with appropriate topology and file format (e.g., STL/OBJ) for use in 3D printing processes, taking into account technical constraints and good design practices.

Complete individual or group projects of progressively increasing difficulty, covering the entire range of the creative process in 3D design—including preparation for 3D printing—from initial conception to final result.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas

Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
.....
Others...
.....

Searching for, analysing and synthesising data and information using the necessary technologies

Adapting to new situations

Decision-making

Working independently

Teamwork

Project planning and management

Respect for diversity and multiculturalism

Critical thinking

Promotion of free, creative and inductive thinking

(3) SYLLABUS

The course focuses on the practical application of fundamental principles of three-dimensional design and modeling, utilizing the open source software Blender. Through a progressive and experiential approach, students are introduced to the basic functions of the Blender work environment, navigation in 3D space, and the use of tools that enable the creation of complex geometric shapes and objects.

The course emphasizes parametric modeling, the creation of materials and textures (shading & texturing), as well as lighting, camera, and rendering techniques, with the aim of producing visually convincing or artistically interesting virtual scenes. .

Particular emphasis is placed on cultivating problem-solving skills, enhancing spatial perception, and connecting theory and practice through individual and group projects. As part of the course, students will have the opportunity to prepare and export their own models for 3D printing, understanding the technical and geometric requirements of the medium.

The course is aimed at both beginners and students with relevant experience and does not require prior knowledge of 3D design. Through a series of exercises, practical applications, and creative challenges, participants will be able to create their own digital objects and environments, using Blender as a tool for contemporary visual expression and digital construction.

(4)

(5) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face,																								
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of ICT in Teaching, Use of ICT in Teaching, Laboratory Education and Communication with Students																								
TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i> <i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	<table border="1"> <thead> <tr> <th>Activity</th><th>Semester workload</th></tr> </thead> <tbody> <tr> <td>Lectures - Laboratory Exercises</td><td>8</td></tr> <tr> <td>Artistic workshop</td><td>22</td></tr> <tr> <td>Practical exercises applying methodologies and analysis of case studies in small groups</td><td>9</td></tr> <tr> <td>Independent study, project creation</td><td>36</td></tr> <tr> <td></td><td></td></tr> <tr> <td></td><td></td></tr> <tr> <td></td><td></td></tr> <tr> <td></td><td></td></tr> <tr> <td></td><td></td></tr> <tr> <td></td><td></td></tr> <tr> <td>Course Total</td><td>50</td></tr> </tbody> </table>	Activity	Semester workload	Lectures - Laboratory Exercises	8	Artistic workshop	22	Practical exercises applying methodologies and analysis of case studies in small groups	9	Independent study, project creation	36													Course Total	50
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STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i> <i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	1. Student performance is assessed after a comprehensive evaluation of the following: 1. Laboratory performance, which consists of oral participation and contribution to the course, student interest and awareness during the course, regular attendance (40%). 2. Project completion Assessment of personal effort through a project that the student is required to complete within the specified time frame. The application of what has been taught and further individual exploration of the subject are assessed through a public presentation (60%). A formative assessment is carried out in the middle of the semester.																								

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(6) ATTACHED BIBLIOGRAPHY

Blain, John M. *The Complete Guide to Blender Graphics: Computer Modeling & Animation*. 7th Edition, CRC Press, 2023. ISBN: 9781032254753

Krone, Allan Brito. *Blender 3D by Example: A project-based approach to learning Blender*. 3rd Edition, Packt Publishing, 2023. ISBN: 9781803246592

Hess, Roland. *Blender Foundations: The Essential Guide to Learning Blender 2.6 and Above*. Focal Press, 2010. ISBN: 9780240814308

Shirra, Gordon Fisher. *3D Printing with Blender*. Maker Media, 2013. ISBN: 9781449343508

Μπόγδος, Κώστας. *Εισαγωγή στη δημιουργία 3D γραφικών με το Blender*. Εκδόσεις Κλειδάριθμος, 2011. ISBN: 9789604614460

Παπαδόπουλος, Α. & Παππάς, Π. *3D Σχεδίαση και Εκτύπωση: Από τη θεωρία στην πράξη*.

Εκδόσεις Τζιόλα, 2022. ISBN: 9789604189821

Νικολόπουλος, Ν. *Ψηφιακή Εικόνα και Οπτικοποίηση: Από τη θεωρία στην πράξη*.

Εκδόσεις Δίαυλος, 2020. ISBN: 9789605313737