COURSE OUTLINE

(1) GENERAL

SCHOOL	**SCHOOL OF FINE ARTS**		
ACADEMIC UNIT	**DEPARTMENT OF FINE ARTS AND ART SCIENCES**		
LEVEL OF STUDIES	**UNDERGRADUATE**		
COURSE CODE	**ΕΤΕΠ305**	**SEMESTER**	**3rd**
COURSE TITLE	Computer Science for the Arts I		

INDEPENDENT TEACHING ACTIVITIES *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*	**WEEKLY TEACHING HOURS**	**CREDITS**
	3	3
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Skills development
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning outcomes

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.

Consult Appendix A

- *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 are expected to:

- Be familiar with the parallel evolution of modern Science, Technology, and Art.
- Understand the basic principles of Informatics and contemporary scientific theories.
- Create artwork supported by Informatics and current scientific knowledge.
- Apply audiovisual artistic creation as a means of perceiving events beyond sensory stimuli.
- Develop a critical stance toward the use of Artificial Intelligence in their artistic work.

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
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

Working in an international environment *Working in an interdisciplinary environment* *Production of new research ideas*	*Production of free, creative and inductive thinking* *……* *Others…* *…….*

Students are expected to acquire the following general competences:

- Search for, analysis and synthesis of data and information, with the use of the necessary technology.
- Working independently - Team work.
- Project planning and implementation of contemporary Art projects.
- Production of new research ideas.
- Production of free, creative and inductive thinking.
- Working in an interdisciplinary environment.

(3) SYLLABUS

Informatics, due to its explosive growth in recent decades, has become a significant tool for artists. It is used in a wide range of expressive forms, including: Video Art, Internet Art, 2D and 3D animation, interactive installations, mapping projection, holographic projection, sound environments, audiovisual effects, and many other forms of contemporary artistic creation.

The purpose of the lab-based course cluster "Informatics: Multimedia Art Applications" is to enable students to use technology as a means of expression to create artworks that go beyond simple multimedia presentation and move into more interactive forms such as Interactive Multimedia (interaction with the viewer) and Hypermedia (promoting a high degree of interaction between artwork and user). Part of the syllabus and deliverables (original artistic work) are organically connected to the syllabus and produced work of the workshop “Painting–3D Representations with New Technologies.”

In this introductory course in Informatics, we examine the role of the contemporary artist in the triad Art–Technology–Science. The course introduces in accessible terms (no prior technical knowledge required) the basic principles of computing systems, art movements influenced by Technology and inspired by Science, and initiatives by institutions, museums, and universities promoting collaboration across these fields. It also explores the artist’s place within modern trends in Informatics such as Artificial Intelligence, quantum computing, NFTs, and digital art markets, while highlighting their role in the audiovisual and technological framework of education.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face. The teaching methodology is student-centered and constructive, based on active engagement through cooperative group methods (respecting diversity and equal opportunities), building on students' prior knowledge (including alternative conceptions discussed through dialogue), aiming at investigative-discovery learning, interdisciplinary approaches, development of critical and creative thinking, and metacognition.
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Use of ICT in teaching, laboratory education, communication with students (Use of video projectors, computers with internet access and multimedia applications).
TEACHING METHODS *The manner and methods of teaching are described in detail.* *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.* *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*	
STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *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* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	Students are not examined on theoretical knowledge through standard tests. Instead, they are asked to express themselves artistically and justify their artistic work through written documentation. The written component follows the structure of a thesis or conference paper, including proper citations and academic references.

Activity	***Semester workload***
Lectures	25
Laboratory Practice	25
Project	25
Course total	***75***

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

Informatics:
Dix, A., Finlay, J., Abowd, G., & Beale, R. (2007). Human–Computer Interaction. Athens: Giourdas.
Forouzan, A. B. (2015). Introduction to Computer Science (3rd ed., trans. Arkoudeas, P., Stefanidis, G.). Athens: Kleidarithmos.

IT textbooks from ITYE-Diophantos: https://ebooks.edu.gr/ebooks/v2/allcourses.jsp → ΠΛΗΡΟΦΟΡΙΚΗ

Repository "KALLIPOS":

https://repository.kallipos.gr/handle/11419/2045
https://repository.kallipos.gr/handle/11419/3489
https://repository.kallipos.gr/handle/11419/4491
https://repository.kallipos.gr/handle/11419/6076

Recommended Bibliography for Science and Art

Arnheim, R. Art and Visual Perception: A Psychology of the Creative Eye (trans. Potamianos, I.). Athens: Themelio, 2005.
Gemtou, E. Art and Science: Interpretive Approaches to Modern and Contemporary Art through the Influence of Science. Athens: Epikentro, 2018.
Foster, H., Krauss, R., Bois, Y. A., & Buchloh, B. H. D. Art Since 1900 (trans. Tsolakidou, I.). Athens: Epikentro, 2007.
Green, B. The Elegant Universe (trans. Tsiantoulas, A.). Athens: Okeanida, 2004.
Kandel, E., Schwartz, J., Jessell, T. Neuroscience and Behavior (trans. Kazlaris, H., Karamanlidis, A., Papadopoulos, G.). Heraklion: University of Crete Press, 2018.
Postle, B. R. Essentials of Cognitive Neuroscience. Wiley, 2015.
Stangos, N. Concepts of Modern Art: From Fauvism to Postmodernism. Athens: MIET, 2003.
Traperas, D. Contemporary Science Notes for Artists. Thessaloniki: Rotonda, 2022.

Recommended Art & Science Resources

Artsper Blog – Contemporary Art
https://blog.artsper.com/en/

Institutions Related to Science and Art

Art Center Nabi, South Korea — https://www.nabi.or.kr/en/
Arts at CERN (Geneva) — https://www.arts.cern
Chronus Art Center (CAC), Shanghai — https://www.chronusartcenter.org
e-flux (New York) — https://www.e-flux.com
HeK – House of Electronic Arts Basel — https://www.hek.ch
iMAL (Brussels) — https://www.imal.org
LABORATORIA Art & Science Foundation (Moscow) — https://www.newlaboratoria.ru
MU Hybrid Art House (Eindhoven) — https://www.mu.nl
Rhizome — https://www.rhizome.org
SETI AIR / SETI Institute (Mountain View) — https://www.seti.org/artist-in-residence
University of the Arts London – MA Art and Science — https://www.arts.ac.uk/subjects/fine-art/postgraduate/ma-art-and-science-csm
V2_, Lab for the Unstable Media (Rotterdam) — https://www.v2.nl

Related Scientific Journals

https://www.leonardo.info
https://www.nationalgeographic.com
https://www.newscientist.com
https://www.sciencedaily.com
https://www.sciencefocus.com
https://www.scienceillustrated.com
https://www.scienceillustrated.gr
https://www.sciencemag.org
https://www.sciencenews.org
https://www.scientificamerican.com
https://www.tovima.gr/science/

Scientific Associations & Educational Organizations

American Association for the Advancement of Science (AAAS) — https://www.aaas.org
American Institute of Physics — https://www.aip.org
CERN – European Organization for Nuclear Research — https://public.web.cern.ch/public/
Crete Center for Theoretical Physics — https://hep.physics.uoc.gr/outreach.shtml
Cyprus Physicists' Association — https://www.ekf.org.cy
Digital School (Greece) — https://digitalschool.minedu.gov.gr
Discover the Cosmos — https://discoverthecosmos.eu
Elementary Particles – NTUA Outreach Team — https://www.physics.ntua.gr/POPPHYS/
Exploratorium — https://www.exploratorium.edu
Fear of Physics — https://www.fearofphysics.com
Greek Association for Science Education — https://www.primedu.uoa.gr/sciedu/EDIFEWEB/index.htm
Hellenic Physical Society — https://www.eef.gr
Microcosm Project — https://www.physics.ntua.gr/POPPHYS/software/MICROCOSM/microcosm.html
NASA — https://www.nasa.gov/home/index.html
National Science Teachers Association (USA) — https://www.nsta.org
NTNUJAVA Virtual Physics Lab — https://www.phy.ntnu.edu.tw/ntnujava/index.php

PhET Interactive Simulations — https://phet.colorado.edu
Physclips – UNSW Animations — https://www.animations.physics.unsw.edu.au
Physics 2000 — https://www.colorado.edu/physics/2000/index.pl
Physics 4U Blog (GR) — https://www.physics4u.gr/blog/
Physics and Physicists (GR) — https://users.sch.gr/kassetas/
Physics in the Foreground – NTUA — https://www.physics.ntua.gr/SOS-Greece/
Schoolphysics — https://www.schoolphysics.co.uk
Science on Stage Europe — https://www.science-on-stage.eu
The Physics Teacher Online — https://ojps.aip.org/tpt
The Science Page — https://sciencepage.org