DEMOCRITUS UNIVERSITY OF THRACE

USP «DIGITAL APPLICATIONS IN ARTS AND CULTURE»
OF THE DEPARTMENT OF HUMANITIES

COURSES OUTLINES

JANUARY 2026

Contents

1ST SEMESTER

COURSE OUTLINE

GREEK AND EUROPEAN LITERATURE: HISTORICAL TRAJECTORIES AND DIGITAL APPROACHES

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΤΕΠ1	**SEMESTER**	1ST
COURSE TITLE	GREEK AND EUROPEAN LITERATURE: HISTORICAL TRAJECTORIES AND DIGITAL APPROACHES		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, students are expected to be able to:

1. Define and interpret key concepts of literary theory and the literary canon, recognizing the mechanisms of canon formation, inclusion, and exclusion.
2. Provide a concise yet well-documented overview of the major phases in the development of European literary production from antiquity to the contemporary era.
3. Identify and analyze the ways in which literary works reflect, influence, or transform social, historical, and ideological contexts.
4. Trace the relationship between literature and philosophical thought.
5. Explain the mechanisms of production, transmission, and preservation of literary texts, from oral tradition and manuscript culture to print technology and digital text encoding (TEI/XML).
6. Compare literary phenomena across different periods and regions, identifying intercultural interactions that shaped European cultural identity.
7. Examine the formation of national literatures and their role in shaping concepts of identity, with particular emphasis on Romanticism and modernity.
8. Analyze the position of Modern Greek literature within the European literary space, understanding the translational, cultural, and historical dimensions of its reception.
9. Critically approach contemporary forms of digital literature (hypertext, e-literature, AI storytelling), understanding new conditions of production, dissemination, and reception.
10. Develop skills in critical reading and interdisciplinary synthesis by combining historical knowledge, theoretical understanding, and digital literacy.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*
Production of new research ideas	

- Search, analysis and synthesis of data and information
- Decision making
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Respect for diversity and multiculturalism
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

The course *Greek and European Literature: Historical Trajectories and Digital Approaches* offers a concise and well-documented overview of the historical development of Greek and broader European literature, from antiquity to the contemporary digital era.

Through selected textual examples, the course highlights how literary forms both reflect and shape historical, social, and ideological contexts, as well as the formation of cultural and European identities.

At the same time, the course integrates contemporary digital approaches to literary studies, focusing on:

- Digital editing, archiving, and open-access practices
- Use of digital collections and databases
- Computational tools for large textual corpora
- Methods of the Digital Humanities

Special emphasis is placed on new forms of literary production and reception, such as digital narrative environments, hypertexts, and large-scale textual analysis, offering students a coherent framework for understanding literature diachronically and within the digital age.

Course Units

1. Text, Literature, and Literary Tradition: Introduction

- What is a text? What is literature? Theoretical approaches and definitions
- The literary canon: formation, criteria, exclusions
- Literature and society: interactions between culture, ideology, and aesthetics
- The concept of diachrony: “from orality to the internet”

2. Mechanisms and Media of Text Production

Greco-Roman Antiquity and Byzantium

- The writing process: authors, patrons, readers
- From orality to writing
- The alphabetic system
- Writing materials and book production: papyrus, parchment, codex
- The survival of texts
    - Texts preserved / texts lost
    - Scribal tradition, scriptoria, commentary

Modern and Contemporary Period

- Print culture and modernity: revolution in dissemination

- The digital era: manuscript digitization, open access, TEI/XML encoding

3. From Materiality to Digitization

- Digital libraries and manuscripts: access, metadata, new search practices
- Digital editions: principles of markup and documentation (XML/TEI)
- Datasets and computational tools: collation, visualization, network analysis, corpora
- Distant reading and digital tools
- New narrative forms: hypertext, interactive fiction, AI storytelling

4. Archaic Greek Literature: Epic and Lyric Poetry

- The culture of the heroic ideal
- Oral-formulaic theory and Homeric epic
- From oral performance to written text: digital preservation of oral traditions
- Lyric poetry: genres, performance, musical accompaniment; digital reconstructions of music and meter
- Sociology of song: public and private functions; digital mapping of social networks

5. Classical Greece: Drama – Historiography – Rhetoric – Philosophy

Ancient Drama

- Athens and the birth of theatre
- Dionysian ritual and political function of tragedy
- Contemporary receptions of tragedy: digital performances, archives, interactive readings

Historiography

- Herodotus, Thucydides, Xenophon: interpretation of events; digital critical editions; mapping historical data

Rhetoric

- From practical persuasion to theoretical instruction; digital discourse analysis

Philosophy and Literary Writing

- Plato: the dialogic form; digital dialogical learning platforms
- Aristotle: systematization of knowledge and logical method; digital analytical tools

6. Hellenistic and Roman Literature

- Cosmopolitanism and imperial ideology
- Hellenistic poetry (Callimachus, Theocritus); libraries and manuscript metadata
- Roman literature:
    - Virgil and imperial epic
    - Ovid and myth transformation
    - Satire, rhetoric, and political life
- Transmission of Greek education to the Roman elite

7. Hellenism and Christianity – Byzantine Literature

- Greek paideia and biblical tradition; digital patristic databases
- Genres: hymnography, historiography, hagiography, epistolography; OCR technologies
- Manuscript culture and knowledge networks
- Learned vs. vernacular language; computational linguistic analysis
- From Byzantium to the Renaissance: translations, diaspora, humanism

8. Medieval Europe and the Renaissance

- Feudal literature: epics, chivalric romance, troubadours; digital archives
- Dante and the cosmology of the *Divine Comedy*
- Humanism and rediscovery of antiquity
- Petrarch and modern subjectivity
- Shakespeare: theatre, politics, global reception; corpus-based analysis

- Printing as technological revolution; digital typographic repositories

9. Baroque – Classicism – Enlightenment

- Baroque aesthetics; digital motif analysis
- Classicism: order and imitation
- Enlightenment and literature as critique; digital knowledge platforms
- Voltaire, Molière, Goethe, Schiller; comparative corpora
- The public sphere and digital mapping of discourse

10. Romanticism and National Literatures

- Emotion and imagination; digital landscape and sentiment analysis
- Philhellenism and national identity
- The novel as national mirror

11. Realism – Naturalism – Modernism – Postwar Europe

- Literature as social mirror; digital sociological text analysis
- Urban life and industrialization
- Modern prose and narrative fragmentation
- Modernist techniques through digital corpora
- Postwar memory, existentialism, Holocaust archives
- Literature as reflection and critique

12. Postmodernism and the Digital Age

- Hypertext, e-literature, AI storytelling; multimodality and interactivity
- Digital literary platforms (e.g., Wattpad, fanfiction communities); democratization of production
- Convergence of literature with VR, AR, and interactive media

13. Modern Greek Literature in the European Context

- From the Enlightenment to the present
- Major authors and contemporary voices
- Translation, international reception, and global literary canon
- The multiple identity of Greek literature: between East and West

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• In-class lectures • Active learning (hands-on learning) – Experiential learning • Collaborative and group-based learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• PowerPoint presentations (PPT) • Educational videos • Use of multimodal and multimedia material in teaching • Communication, coordination of study, and assignment submission through the e-class platform and social media
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical*	

Activity	***Workload/semester***
Lectures	39
Assignments / Exercises	50
Study and Bibliographic Analysis	58

Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc. *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	Examinations: 3 Total: 150
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative and Summative Assessment Mid-term assessments through applications/projects at individual or group level (formative assessment): 20% Written assignment (paper/project): 30% Final written examination: 50%

5. SUGGESTED BIBLIOGRAPHY

Beaton, R. (1996). Εισαγωγή στη νεότερη ελληνική λογοτεχνία (Ευ. Ζουργού & Μ. Σπανάκη, Μετάφρ.). Νεφέλη.

Δημητρούλια, Ξ., & Τικτοπούλου, Α. (2015). Ψηφιακές λογοτεχνικές σπουδές [Προπτυχιακό εγχειρίδιο]. Κάλλιπος, Ανοικτές Ακαδημαϊκές Εκδόσεις. https://dx.doi.org/10.57713/kallipos-472

Fokkema, D. &Ibsch, E. (2011). Θεωρίες Λογοτεχνίας του Εικοστού Αιώνα. Δομισμός. Μαρξισμός. Αισθητική της πρόσληψης. Σημειωτική (μτφρ. Γιάννης Παρίσης). Αθήνα: Πατάκης.

Hammond, A. (Ed.). (2023). Technology and Literature. Cambridge University Press: Cambridge.

Hose, M., & Schenker, D. (Eds.). (2015). A companion to Greek literature. John Wiley & Sons. https://doi.org/10.1002/9781118886946

Kenney, E. J., & Clausen, W. V. (1999). Ιστορία της λατινικής λογοτεχνίας. Δημ. Ν. Παπαδήμα.

Montanari, F. (2008). Ιστορία της αρχαίας ελληνικής λογοτεχνίας. Θεσσαλονίκη.

Πολίτης, Λ. (1978). Ιστορία της νεοελληνικής λογοτεχνίας. ΜΙΕΤ.

Βάρσος, Γ. (1999). Ιστορία της ευρωπαϊκής λογοτεχνίας από τον 6ο έως τις αρχές του 18ου αιώνα. Ελληνικό Ανοικτό Πανεπιστήμιο.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	xxxxxxxxx
Contact details:	xxxxxxxxx
Supervisors: (1)	YES
Evaluation methods: (2)	Assignment: 40% Written exam: 60%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(1) Please write YES or NO

(2) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(3) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

GREEK HISTORY AND ITS SOURCES FROM ANTIQUITY TO THE PRESENT

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΤΕΠ2	**SEMESTER**	1ST
COURSE TITLE	GREEK HISTORY AND ITS SOURCES FROM ANTIQUITY TO THE PRESENT		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, students will be able to:

- Understand the main trends and general characteristics of Greek history and apply methodological tools to assess the figures and events that shaped Greece, from the Mycenaean period and the rise of ancient city-states to the Byzantine Empire, its dissolution, the arrival of Latin and Ottoman rulers, the establishment of the Greek nation-state, Greece's entry into the EEC, and the era of the pandemic.
- Place the key milestones of Greek history within the European context and broader historical settings.
- Interpret primary sources of Greek history.
- Appreciate the value of historical sources and understand the differences in documentary material available to historians and those working in the preservation and utilization of these sources with digital tools.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*

Production of new research ideas
• Search, analysis and synthesis of data and information, ICT Use • Autonomous work • Teamwork • Equity and Inclusion • Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Mycenaean World and Homeric Era
2. From City-States to Alexander the Great
3. Roman Rule and Late Antiquity
4. Early Byzantine Period (4th-6th centuries)
5. Middle and Late Byzantine Period (7th-15th centuries)
6. Sources of Byzantine History (Historiographic, Chronographic, Hagiographic, etc.)
7. Latin Dominions in the Greek World
8. Archival Sources: Vocal and Silent—Their Use in Historical Science
9. Archival Records of Venetian Rulers in the Greek Territories on the Cloud
10. Periodizations and Timelines of Modern and Contemporary History: Mapping the Research Field
11. Diplomatic, Family, and Industrial Archives and Their Histories
12. From Newspapers and Ephemeral Sources to Media and Audiovisual Sources
13. Recap: Addressing Student Questions and Resolving Any Doubts

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Lectures • Active learning (hands-on learning) - Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic*	- Oral Final Examination - Optional Written Assignment

Activity	***Workload/semester***
Lectures	39
Independent Study and Exam Preparation	56
Study and Analysis of Sources and Bibliography	52
Final Written Examination	3
Total	150

interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

5. SUGGESTED BIBLIOGRAPHY

- R. Osborne, *Greece in the Making (1200-479 BC)*. London-NewYork, 2005. 4) Hall J. M., *Αρχαία ελληνική ιστορία: η αρχαϊκή περίοδος, 1200-479 π.Χ.* (ελληνική μτφρ. Ιωάννης Κ. Ξυδόπουλος). Θεσσαλονίκη, 2013.
- Δ. Δ. Χατζόπουλος, Ιστορία του ρωμαϊκού κράτους. Αθήνα, 2015.
- Β. Νεράντζη-Βαρμάζη, *Βυζαντινή Ιστορία 324-1453,* 2ηέκδ., Θεσσαλονίκη 2022 (Γράφημα).
- ArletteFarge, Η γεύση του αρχείου, εκδ. Νεφέλη. Αθήνα 2004.
- Ελπίδα Κ. Βόγλη, *Τα πεδία της ιστορίας στο παρελθόν και το παρόν της*, Αθήνα, εκδόσεις Πεδίο, 2023.
- MarcBloch, *Απολογία για την ιστορία. Το επάγγελμα του ιστορικού*, μτφρ. Κώστας Γαγανάκης, Αθήνα: Εναλλακτικές Εκδόσεις, 1994.
- E.H. Carr, *Τι είναι ιστορία; Σκέψεις για τη θεωρία της ιστορίας και το ρόλο του ιστορικού*, μτφρ. Αντρέας Παππάς, Αθήνα: Γνώση, 1999.
- FrançoisDosse, *Η ιστορία σε ψίχουλα. Από τα Annales στη "Νέα Ιστορία"*, μτφρ. Αγγελική Βλαχοπούλου, Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης, 1993.
- Αντώνης Λιάκος, *Πώς το παρελθόν γίνεται ιστορία;* Αθήνα: Πόλις, 2007.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	P. TZIVARA
Contact details:	ptzivara@he.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Oral Final Examination Optional Written Assignment
Implementation Instructions: (3)	The oral final examination will be conducted via Skype on a date and time that will be announced in advance, along with details on its duration and content, within a reasonable timeframe before the examination. The optional written assignment must be submitted through eClass on a specified date.

(4) Please write YES or NO

(5) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(6) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

HUMAN EVOLUTION AND MATERIAL CULTURE

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΤΕΠ3	**SEMESTER**	1ST
COURSE TITLE	HUMAN EVOLUTION AND MATERIAL CULTURE		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

The course series introduces the study of human evolution and material culture from Prehistory to Antiquity. The first axis of the course focuses on prehistoric culture, from the beginnings of prehistory, the longest historical period of humanity, to its end, with particular emphasis on the Greek region and its connections with the wider geographical world, including Africa and Europe. The aim is to provide a comprehensive introduction to the Prehistory of the earliest human societies and their cultural developments, from the emergence of humans to the end of the Bronze Age.

The second axis offers an overview of the major achievements of Greco-Roman civilization through the study of characteristic artefacts and monuments during the first millennium BCE. By examining material remains from prominent archaeological sites, such as sanctuaries, cemeteries, and domestic contexts, the course highlights the most significant cultural developments of the societies that flourished in the Greek world and beyond.

Specifically, the course:

Provides a concise introductory overview of the history of humanity, its major historical periods, and their distinctive cultural characteristics:

- the Palaeolithic period, including human evolution and its cultural expressions through archaeological evidence, with emphasis on the Greek and broader European regions
- the Neolithic period and the historical and cultural transformations that took place in the eastern Mediterranean and the Greek world

• the Bronze Age in the Aegean
• the Geometric Period and the archaeology of the Homeric epics
• the Archaic period and the developments brought about by phenomena such as colonisation and the establishment of Panhellenic sanctuaries in the arts and architecture
• the Classical period and the impact of major conflicts, such as the Persian Wars, on society and the arts, examined through selected case studies
• the Hellenistic world and the new social and artistic realities from the reign of Alexander III to the rise of Rome

Upon successful completion of the course, students will be able to:

• understand long-term processes reflected in material culture as the result of complex social, economic, and historical phenomena that can be identified in archaeological remains through appropriate theoretical and methodological approaches
• evaluate the position and role of prehistoric and historical societies over time, particularly within the Greek world
• identify the main forms of material culture from the major periods of prehistory and antiquity and relate them to the activities of the societies that produced them
• recognise and interpret material culture as a primary source for the study of human evolution and social transformation
• describe the major phases of human evolution through material remains from the Palaeolithic, Mesolithic, Neolithic, and later historical periods
• analyse technologies, artefacts, and architectural practices in relation to their environmental, social, and historical contexts
• compare forms of material culture across different periods, identifying continuities and transformations
• interpret material remains (tools, pottery, architecture, burial assemblages) as expressions of social relations, identity, and ideology
• connect material culture with issues of social organisation, production, everyday life, and power
• apply basic archaeological and anthropological concepts to the analysis of material evidence from different chronological periods
• formulate well-supported arguments, orally or in writing, based on archaeological and anthropological evidence.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*
Production of new research ideas	

- Search, analysis and synthesis of data and information, ICT Use
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Critical thinking
- Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

1	Origins and evolution of early hominins. Origin and evolution of the genus Homo.
2	Evolution and dispersal of modern humans (Homo sapiens): survival strategies, material remains, and environmental adaptations.
3	The last 10,000 years: developments in anatomically modern humans.
4	The Palaeolithic in Europe: geological periods, climatic changes, and archaeological evidence. Lower, Middle, and Upper Palaeolithic.
5	The Palaeolithic and Mesolithic periods in Greece.
6	The Neolithic in the Eastern Mediterranean and the emergence of early farming societies.
7	The Neolithic in the Greek region: exchange networks and social transformations.
8	The Bronze Age in the Greek world: Cycladic, Minoan, and Mycenaean civilizations.
9	The Geometric Period: archaeological evidence and the Homeric tradition.
10	The Archaic Period: architecture, sculpture, and pottery in the Greek world and the colonies.
11	The Classical Period: Athens and other artistic centres.
12	The Hellenistic Period: the arts at the Macedonian courts and intercultural interaction.
13	Overview and synthesis.

4. LEARNING & TEACHING METHODS - EVALUATION

<table>
<tr><td>TEACHING METHOD
Face to face, Distance learning, etc.</td><td>• Co-teaching
• Lectures
• Active learning (hands-on learning) – Experiential learning</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>Use of ICT in Teaching and Communication with Students
• Presentations – teaching supported by specialised software (PowerPoint)
• Teaching material, announcements, and communication via the eClass platform
• Students' study of supporting material related to the course content
• Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>39</td></tr><tr><td>Independent study and exam preparation.</td><td>108</td></tr><tr><td>Examinations</td><td>3</td></tr><tr><td>Total</td><td>150</td></tr></table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic</td><td>Final summative assessment is conducted through a written examination, which includes:
• short-answer questions
• essay questions</td></tr>
</table>

interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

5. SUGGESTED BIBLIOGRAPHY

Course Textbooks

1. Jean-Paul Demoule, Dominique Garcia, Alain Schnapp 2023. Μία ιστορία των πολιτισμών. Πως η αρχαιολογία ανατρέπει τις γνώσεις μας. Αθήνα: Καρδαμίτσα.
2. Πλάντζος, Δ. 2018. Ελληνική Τέχνη και Αρχαιολογία, 1200-30 π.Χ. Αθήνα: Καπόν

Additional Recommended Literature

1.Chris Scarre 2023. Το ανθρώπινο παρελθόν. Η παγκόσμια προϊστορία και η διαμόρφωση των ανθρώπινων κοινωνιών. Θεσσαλονίκη: University Studio Press.
2. Larsen Clark Spencer 2020.Βιολογική Ανθρωπολογία-Ανακαλύπτοντας τις Ρίζες μας Εκδόσεις Broken Hill Publishers.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	AMALIA AVRAMIDOU, DUSHANKA CHRISTINA OUREM KOTSOU, CHRISTINA PAPAGEORGOPOULOU (Course coordinator: Avramidou)
Contact details:	aavrami@hs.duth.gr, durem@hs.duth.gr, cpapage@hs.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Written exam: 100%
Implementation Instructions: (3)	Written examinations will be conducted via the eClass platform on a date and time announced in advance, together with their duration and content, within a reasonable period prior to their administration.

(7) Please write YES or NO

(8) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(9) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

MATHEMATICS I: ANALYSIS AND DIFFERENTIAL CALCULUS

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ1	**SEMESTER**	1ST
COURSE TITLE	MATHEMATICS I: ANALYSIS AND DIFFERENTIAL CALCULUS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After successful completion of the course, students will be able to:

- Understand and use fundamental concepts of real analysis, including number sets, intervals, functions, and graphs.
- Calculate limits of functions and identify continuity and discontinuity.
- Apply definitions and rules of differentiation to basic and composite functions.
- Interpret the derivative geometrically and physically (tangent slope, rate of change).
- Analyze monotonicity, extrema, and concavity using derivatives.
- Solve optimization problems and applications related to physical or technical contexts.
- Apply key theorems of differential calculus (Rolle's Theorem, Mean Value Theorem, Fermat's Theorem).
- Develop mathematical reasoning and precision in problem formulation and solution.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

Working in an international environment *Working in an interdisciplinary environment* *Production of new research ideas*
• Search, analysis and synthesis of data and information • Decision making • Autonomous work • Working in an interdisciplinary environment • *Production of new research ideas* • *Critical thinking* • Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

1	Introduction to Analysis and basic concepts
2	Real numbers, intervals, absolute value, inequalities, basic operations
3	Functions of a real variable: definition, domain, range, graphs
4	Limits of functions: concept and properties
5	Continuity of functions: definition and properties, Bolzano and Weierstrass theorems
6	Definition of the derivative: rate of change, tangent line
7	Rules of differentiation: sum, product, quotient, chain rule
8	Derivatives of basic functions: polynomial, rational, exponential, logarithmic, trigonometric
9	Higher-order derivatives and applications (velocity–acceleration interpretation)
10	Fundamental theorems of differential calculus (Rolle, Mean Value, Fermat)
11	Monotonicity and extrema of functions
12	Concavity and inflection points
13	Graphical analysis of functions and optimization problems

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face-to-face lectures • Workshops • Active (hands-on) learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• PowerPoint presentations • Digital tools and platforms • eClass for material, announcements, and communication • Email communication
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	***Activity*** / ***Workload/semester*** Lectures: 26 Laboratories: 13 Final Assignment: 30 Weekly projects/tests: 38 Independent study: 40 Final examination: 3 Total: 150
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test,*	• Weekly projects: 40% • Mandatory assignment: 30% • Final examination: 30% Assessment is formative and cumulative.

Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

5. SUGGESTED BIBLIOGRAPHY

- Τσεκρέκος, Π. (2008). *Μαθηματική ανάλυση Ι*. Εκδόσεις Συμμετρία.
- Briggs, Cochran and Gillett, *Απειροστικός Λογισμός*, Κριτική Α.Ε., 2018.
- Μυλωνάς Ν., *Ανώτερα Μαθηματικά*, Εκδόσεις Τζιόλα, 2017.
- Βρυζίδης, Μακρυγιάννης, Σάσσαλος, *Γενικά Μαθηματικά*, Σύγχρονη Εκδοτική, 2016.
- Κυβεντίδης Θωμάς, Ολοκληρωτικός Λογισμός Συναρτήσεων Πολλών Μεταβλητών, Εκδόσεις ΖΗΤΗ, ISBN 978-960-456-491-0, Κωδικός Ευδόξου: 68392615.
- Thomas, G. B., Weir, M. D., Hass, J., & Giordano, F. R. (2018). Απειροστικός λογισμός (13η έκδ.). Εκδόσεις Κλειδάριθμος.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	• Weekly projects: 40% • Mandatory assignment: 30% • Final examination: 30%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(10) Please write YES or NO

(11) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(12) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

STRUCTURED PROGRAMMING

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ2	**SEMESTER**	1ST
COURSE TITLE	STRUCTURED PROGRAMMING		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	Scientific Area
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After successful completion of the course, students will be able to:

- Understand the logic of algorithmic problem-solving and its relation to the analysis of research questions in the humanities.
- Analyze problems and data and translate them into clearly defined computational steps.
- Design and implement structured programs in C using sequence, selection, and iteration.
- Use basic data types, variables, and operators in C for data representation and processing.
- Develop and use functions in C, understanding modular design and code reuse.
- Identify, analyze, and correct errors in programs (debugging).
- Handle input/output operations, including file reading and writing.
- Document code and program logic in a way accessible within interdisciplinary contexts.
- Evaluate the correctness and efficiency of simple algorithmic solutions.
- Transfer the principles of structured programming to other languages and tools used in Digital Humanities.
- Collaborate in small teams on programming tasks.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues

Decision making *Autonomous work* *Teamwork* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Critical thinking* *Promoting free, creative and inductive reasoning*

- Search, analysis and synthesis of data and information
- Decision making
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- *Production of new research ideas*
- *Critical thinking*
- Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

1	Introduction to algorithms and structured programming. Basic concepts, role of C, development environment
2	Data representation and basic types in C. Integers, floating-point numbers, characters, constants, variables
3	Operators and expressions. Arithmetic, logical, relational operators and precedence
4	Input and output. Basic I/O functions and formatting.
5	Selection structures. if, if–else, switch statements
6	Iteration structures while, do–while, for loops and applications
7	Functions and modular program design. Parameters, return values, variable scope
8	Arrays. One-dimensional and two-dimensional arrays
9	Structures (structs) and composite data types. Organization and representation of data
10	Searching and sorting algorithms. Linear and binary search, basic sorting methods
11	Recursion. Concept, examples, comparison with iterative solutions
12	Pointers and basic memory management. Relationship between pointers and arrays, introduction to dynamic memory
13	Files and integrated applications. File I/O and synthesis of course concepts

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face-to-face lectures • Workshops • Active (hands-on) learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• PowerPoint presentations • Digital tools and platforms • eClass for material, announcements, and communication • Email communication
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per*	

Activity	***Workload/semester***
Lectures	26
Laboratories	13
Final Assignment	30
Weekly projects/tests	38
Independent study	40
Final examination	3
Total	150

activity is indicated here, so that total workload per semester complies to ECTS standards.	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	• Weekly projects: 40% • Mandatory assignment: 30% • Final examination: 30% Formative assessment.

5. SUGGESTED BIBLIOGRAPHY

- Ν. Μισυρλή, Δομές Δεδομένων Με C, Αθήνα 2002
- Cheng H., C για Επιστήμονες και Μηχανικούς, Τζιόλα 2013
- Abbey Deitel, Harvey, Deitel, C Προγραμματισμός, 7η Έκδοση, Γκιούρδας 2014.
- Γ. Σ. Τσελίκης - Ν. Δ. Τσελίκας, C: Από τη Θεωρία στην Εφαρμογή, 2016.
- Αντωνοπούλου Η. Βογιατζής Ι., Εισαγωγή στον Προγραμματισμό β έκδοση, Τσότρας 2017.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	• Weekly projects: 40% • Mandatory assignment: 30% • Final examination: 30%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(13) Please write YES or NO

(14) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(15) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

DATABASES I

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ3	**SEMESTER**	1ST
COURSE TITLE	DATABASES I		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

The course introduces the fundamental principles of database systems, the relational model, database design, and the SQL language. Its aim is for students to acquire theoretical understanding and practical skills in the design and use of relational databases.

After the successful completion of the course, participants will be able to:

- Understand the basic concepts of databases and DBMSs
- Design conceptual and logical database models
- Implement databases using SQL
- Apply normalization to avoid redundancy and inconsistencies

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information
- Decision making
- Autonomous work
- Working in an international environment
- Working in an interdisciplinary environment
- Production of new research ideas
- Project design and management

3. COURSE CONTENT

1. **Introduction to Databases**
   Concepts of data, information, and knowledge. Databases and database management systems (DBMS). Examples of database applications in the arts, culture, and cultural heritage.
2. **File Systems and Databases**
   Comparison of traditional file systems with databases. Disadvantages of file systems and advantages of using DBMSs in the management of cultural data.
3. **Database Architecture**
   ANSI/SPARC architecture. Levels of data abstraction. Concepts of schema and instance. The role of architecture in managing complex cultural information systems.
4. **Data Modeling – Conceptual Design**
   The concept of a data model and the importance of conceptual design. Analysis of data requirements in cultural and artistic applications.
5. **Entity–Relationship (ER) Model**
   Entities, attributes, keys, and relationships. Examples of modeling cultural objects, collections, creators, and organizations.
6. **Constraints and Extensions of the ER Model**
   Cardinalities and participation constraints. Weak entities. Specialization and generalization. Representation of complex cultural data structures.
7. **From the ER Model to the Relational Model**
   Rules for transforming conceptual ER models into relational schemas. Application examples in cultural content databases.
8. **Relational Data Model**
   Concepts of tables, tuples, and attributes. Primary and foreign keys. Integrity constraints and ensuring the consistency of cultural data.
9. **Functional Dependencies**
   Definition and properties of functional dependencies. Their role in proper database design. The concept of a minimal cover.
10. **Database Normalization**
    Normal forms (1NF, 2NF, 3NF, BCNF). Goals of normalization and avoidance of redundancy. Examples from cultural databases.
11. **Introduction to the SQL Language**
    Basic data definition and data manipulation commands (DDL and DML). Creation, modification, and management of tables and data.
12. **SQL Queries**
    Data retrieval with SELECT. Table joins (JOIN), subqueries, grouping and aggregation (GROUP BY, HAVING). Examples of queries on cultural content.
13. **Views, Integrity Constraints, and Introduction to Transactions**
    Views and their use. Integrity constraints. Introduction to the concept of transactions and the basic ACID properties in cultural information systems.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• In-class lectures • Workshops • Active learning (hands-on learning) – Experiential learning • Collaborative learning
USE OF INFORMATION &	• Use of ICT in Teaching and Communication with

<table>
<tr><td>COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>students:
PPT presentations
Use of digital tools and platforms
Teaching material, announcements, and communication via the eClass platform
Students’ study of supporting material related to the course content
Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>26</td></tr><tr><td>Laboratory sessions</td><td>13</td></tr><tr><td>Final project</td><td>30</td></tr><tr><td>Weekly projects / assignments</td><td>38</td></tr><tr><td>Independent study</td><td>40</td></tr><tr><td>Final examination</td><td>3</td></tr><tr><td>Total</td><td>150</td></tr></table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others

Please indicate all relevant information about the course assessment and how students are informed</td><td>Formative assessment
Weekly projects: 40%
Assignment (mandatory): 30%
Final examination: 30%</td></tr>
</table>

5. SUGGESTED BIBLIOGRAPHY

- Ramakrishnan R., Gehrke J., *Συστήματα Διαχείρισης Βάσεων Δεδομένων*, 3η έκδοση, Εκδόσεις Α. Τζιόλα & Υιοί Ο.Ε., 2012.
- Silberschatz A., Korth H. F., Sudarshan S., *Συστήματα Βάσεων Δεδομένων*, 6η έκδοση, Εκδόσεις Γκιούρδα, 2011.
- Elmasri R., Navathe S., *Θεμελιώδεις Αρχές Συστημάτων Βάσεων Δεδομένων*, 7η έκδοση, Εκδόσεις Τζιόλα, 2016.
- J. Ullman – J. Widom, *Βασικές Αρχές για τα Συστήματα Βάσεων Δεδομένων*, Εκδόσεις Κλειδάριθμος ΕΠΕ, 2008.
- Παπαδόπουλος, Α. Ν., Τζουραμάνης, Θ., Γούναρης, Α., Μανωλόπουλος, Ι., Συστήματα Βάσεων Δεδομένων – 2η Έκδοση Θεωρία & Πρακτική Εφαρμογή, Εκδ. Νέων Τεχνολογιών, 2020.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly projects / tests: 40% Assignment (mandatory): 30% Final examination: 30%
Implementation Instructions: (3)	Written tests and the final examination will be conducted via eClass on a date and time that will be announced in advance, together with their duration and content, within a reasonable period prior to their administration. The assignment will be submitted via eClass on a specified date.

(16) Please write YES or NO

(17) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(18) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

2ND SEMESTER

COURSE OUTLINE

HISTORY OF ART

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΤΕΠ4	**SEMESTER**	2ND
COURSE TITLE	HISTORY OF ART		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Describe, analyze, and date significant works and architectural monuments, using appropriate terminology and examples to support their arguments,
- Acquire foundational knowledge that enables them to navigate collections, museums, and archaeological sites with ease,
- Engage with bibliographic research tools and address issues related to the collection and documentation of monuments and works in the visual arts.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information,
- ICT Use
- Equity and Inclusion
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1	Introduction
2	The work of art and its history
3	Drawing
4	Painting
5	Engraving
6	Sculpture
7	Architecture
8	The Internal expressive means of painting (Part I)
9	The Internal expressive means of painting (Part II)
10	Painting techniques
11	Thematic categories in painting
12	Main theories and methods of art study (Part I)
13	Main theories and methods of art study (Part II)

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face to face • Lectures
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	***Activity*** — ***Workload/semester*** Lectures — 39 Bibliographic research and analysis — 56 Essay — 52 Written examination — 3 Total — 150
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Mid-term written examination: 30% Final written examination: 70%

5. SUGGESTED BIBLIOGRAPHY

1. Α. Χαραλαμπίδης, Τέχνη. Βλέπω – Γνωρίζω – Αισθάνομαι, Θεσσαλονίκη 2016.
2. Ν. Δασκαλοθανάσης, Ιστορία της Τέχνης. Η γέννηση μιας νέας επιστήμης από τον 19ο στον 20ο

αιώνα, Αθήνα 2013.
3. M. Beardsley, Ιστορία των Αισθητικών Θεωριών, μετ.: Δ. Κούρτοβικ – Π. Χριστοδουλίδης, Αθήνα 1989.
4. E. N. Gombrich, Το χρονικό της τέχνης, Αθήνα 2011.
5. E. Panofsky, Μελέτες εικονολογίας. Ουμανιστικά θέματα στην Τέχνη της Αναγέννησης, μετ. Α. Παππάς, Αθήνα 1991.
6. D. Watkin, Ιστορία της Δυτικής Αρχιτεκτονικής, μετ.: Κ. Κουρεμένος, Αθήνα 2007.
7. H. Wolfflin, Βασικές έννοιες της Ιστορίας της Τέχνης, μετ.: Φ. Κοκαβέσης, Θεσσαλονίκη 1992.
8. Στ. Λυδάκης, Ορολογία Εικαστικών Τεχνών, Αθήνα 2009.
9. Α. Χαραλαμπίδης, Η τέχνη του εικοστού αιώνα, τόμ. 1-3, Θεσσαλονίκη 1990.
10. Χρ. Χρήστου, Θεωρία και ιστορία της νεώτερης τέχνης, Θεσσαλονίκη 1972.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	G. TSIGARAS
Contact details:	gtsigara@he.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Mid-term written examination: 30% Final written examination: 70%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(19) Please write YES or NO

(20) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(21) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

MATHEMATICS II: APPLIED MATHEMATICS

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 7		
COURSE CODE	ΨΕΦ4	**SEMESTER**	2ND
COURSE TITLE	MATHEMATICS II: APPLIED MATHEMATICS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Apply concepts of differential and integral calculus to problems in the applied sciences.
- Compute indefinite and definite integrals and employ basic techniques of integration.
- Use integrals to calculate areas, volumes, and average values.
- Model simple physical, economic, and technical problems using mathematical functions.
- Understand and solve basic classes of first-order differential equations.
- Use differential equations to describe phenomena of change.
- Apply elements of linear algebra to practical problems.
- Use methods of approximate computation and numerical techniques.
- Analyze data using fundamental tools of mathematical modelling.
- Combine different mathematical tools to solve complex applied problems.
- Interpret mathematical results within the context of real-world applications.
- Develop problem-solving skills in an interdisciplinary environment.
- Use mathematical notation and terminology with precision and clarity.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking

Working in an interdisciplinary environment *Promoting free, creative and inductive reasoning* *Production of new research ideas*
• Search, analysis and synthesis of data and information, • ICT Use • Autonomous work • Decision making • Working in an interdisciplinary environment • Production of new research ideas • Critical thinking • Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Introduction to Applied Mathematics
   Mathematical modelling and the role of mathematics in applications.
2. Review of Integrals
3. Techniques of Integration
   Integration by parts, partial fractions, substitution.
4. Definite Integrals and Applications
5. Areas, Volumes, and Physical Applications of Integrals
6. Elements of First-Order Differential Equations
7. Separable and Linear Differential Equations
8. Applications of Differential Equations in Physics and Economics
9. Systems of Linear Equations – Applications
10. Basic Concepts of Matrices and Applications
11. Numerical Methods and Approximate Solutions
12. Mathematical Modelling of Real-World Problems
13. Advanced Applications – Review and Integration of Course Material

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Classroom lectures • Workshops • Active learning (hands-on learning) – Experiential learning • Collaborative group learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	

Activity	*Workload/semester*
Lectures	26
Workshops	13
Essay	30
Weekly projects	38
Independent study	40
Written examination	3
Total	150

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods,*	Formative Weekly projects: 40% Essay (compulsory): 30%

Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	Final written examination: 30%

5. SUGGESTED BIBLIOGRAPHY

Apostol, T. M. (1975). *Calculus (Vols. 1–2)*. John Wiley & Sons.

Ayres, F., Jr. (1983). *Γενικά μαθηματικά* (Schaum's Outline Series). ΕΣΠΙ.

Μπράτσου, Α. (2003). *Ανώτερα μαθηματικά*. Εκδόσεις Α. Σταμούλη.

O'Neil, P. (2006). *Advanced engineering mathematics* (International ed.). Cengage Learning.

Spiegel, M. R. (1982). *Ανώτερα μαθηματικά* (Schaum's Outline Series). ΕΣΠΙ.

Stroud, K. A., Dexter, J., & Booth, D. (2007). *Engineering mathematics*. Palgrave Macmillan.

Thomas, G. B., & Russell, L. (2004). *Απειροστικός λογισμός Ι*. Πανεπιστημιακές Εκδόσεις Κρήτης.

Weir, M. D., Hass, J., & Giordano, F. R. (2005). *Thomas' calculus* (11th ed.). Pearson Addison Wesley.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly projects: 40% Essay (compulsory): 30% Final written examination: 30%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(22) Please write YES or NO

(23) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(24) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

OBJECT-ORIENTED PROGRAMMING I

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ5	**SEMESTER**	2ND
COURSE TITLE	OBJECT-ORIENTED PROGRAMMING I		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Describe and explain fundamental programming concepts and the main characteristics of the object-oriented programming paradigm.
- Identify and use the concepts of classes and objects to structure simple programs.
- Apply basic principles of object-oriented design, such as encapsulation and polymorphism, in simple examples.
- Use basic object collections and control structures to solve simple problems.
- Analyse simple problems and translate them into object-oriented models.
- Develop small-scale object-oriented applications with themes related to the arts or culture.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information
- Decision making
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Production of new research ideas
- Project design and management

3. COURSE CONTENT

1	**Introduction to Programming and Programming Paradigms** • The concept of a program and basic principles of algorithmic thinking. • Procedural and object-oriented programming: key differences. • Indicative application areas in the arts and culture.
2	**Basic Structures of an Object-Oriented Program** • File structure and basic syntax elements. • Variables, basic data types, and operators. • Control flow (sequence, selection, iteration).
3	**The Concept of Class and Object** • Definition of a class as a blueprint. • Creating objects and using them in a program. • The class–object relationship illustrated through examples.
4	**Attributes and Methods** • Definition and role of attributes (fields). • Definition of methods and invoking them from objects. • Interaction between objects through methods.
5	**Encapsulation and Access Control** • The concept and purpose of encapsulation. • Public and private class members. • Basic practices for sound code organisation.
6	**Constructors** • The role of constructors in object creation. • Initialising attributes during object instantiation. • Multiple constructors (basic introduction).
7	**Reference Types and Object Collections** • Reference types and object memory management. • Arrays of objects. • Introduction to basic collections.
8	**Inheritance** • Concept and purpose of inheritance. • Basic class hierarchies. • Code reuse through inheritance.
9	**Polymorphism** • Method overriding. • Dynamic method binding. • Examples of simple polymorphic behaviour.
10	**Abstraction** • The concept of abstraction in object-oriented design. • Abstract classes. • Basic introduction to interfaces.
11	**Basic Error Handling** • The concept of errors and exceptions. • Basic exception-handling structures. • The importance of reliable program execution.

12	**Object-Oriented Modelling of Simple Problems** • Problem analysis and identification of classes. • Design of simple object-oriented models. • Examples drawn from cultural or creative applications.
13	**Small-Scale Object-Oriented Project** • Design and implementation of a simple application. • Application of core OOP principles. • Presentation and basic documentation.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face-to-face lectures. • In-class lectures • Workshops • Active (hands-on) and experiential learning • Collaborative (group-based) learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• Use of ICT in Teaching and Communication with students: • PowerPoint presentations • Utilization of multimodal-multimedia material in teaching • Communication and coordination of study and assignment preparation through e-class and social media platforms
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Assessment Weekly Projects: 40% Assignment (obligatory): 30% Final written examination: 30%

Activity	***Workload/semester***
Lectures	26
Workshops	13
Final Assignment	29
Weekly Projects / Tests	45
Study and Analysis of Bibliography	35
Examinations	2
Total	150

5. SUGGESTED BIBLIOGRAPHY

- Bloch, Joshua. Effective Java. 3rd ed., Addison-Wesley, 2018.
- Horstmann, Cay S. Core Java Volume I: Fundamentals. 11th ed., Pearson, 2018.
- Lafore, Robert. Object-Oriented Programming in C++. 4th ed., Sams, 2002.
- Μπαλής, Βασίλειος. Αντικειμενοστραφής Προγραμματισμός. Εκδόσεις Κλειδάριθμος, 2016.

- Σαββίδης, Ιωάννης. Αρχές Προγραμματισμού και Αντικειμενοστραφής Σχεδίαση. Εκδόσεις Τζιόλα, 2014.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly Projects: 40% Assignment (obligatory): 30% Final written examination: 30%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(25) Please write YES or NO

(26) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(27) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

DATABASES II

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ6	**SEMESTER**	2ND
COURSE TITLE	DATABASES II		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

The course delves into advanced topics in database systems, such as the internal operation of DBMSs, query optimization, transactions, concurrency control, recovery from failures, and modern types of databases.

After the successful completion of the course, participants will be able to:

- Understand how a DBMS operates at an internal level
- Analyze and optimize queries
- Manage transactions and issues of concurrent access
- Be familiar with alternative database models

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information
- Decision making
- Autonomous work
- Working in an international environment
- Working in an interdisciplinary environment
- Production of new research ideas
- Project design and management

3. COURSE CONTENT

14. **Introduction to the Physical Organization of Database Systems**
    Concept of physical data organization in a database management system (DBMS). Interaction between the logical and physical levels. Importance of efficient storage and access to large data sets.
15. **Data Storage Media**
    Memory and storage hierarchy. Characteristics of disks and secondary storage. Impact of storage media on database performance.
16. **Tree Structures and File Organization**
    Indexing and directory structures. B-trees, B+ trees, and B* trees. Use of tree structures for efficient data search and access.
17. **Hashing**
    Hashing techniques and their applications in databases. Static and dynamic hashing. Comparison with tree-based access structures.
18. **Buffer Management**
    Principles of main memory management in DBMSs. Page replacement policies. Role of buffer management in improving database system performance.
19. **Query Processing and Optimization**
    Query processing algorithms. Execution plans. Cost estimation and use of statistics. Basic principles of SQL query optimization.
20. **Transaction Processing and Concurrency Control Techniques**
    Concept of a transaction. Transaction states and properties. Concurrency control techniques. Serializability and basic locking mechanisms.
21. **Failure Recovery Techniques**
    Handling failures in database systems. Logging, checkpoints, and undo/redo techniques. Ensuring data reliability.
22. **Database Security and Authorization**
    Principles of data security. Access control, user roles, and privileges. Issues of privacy and protection of sensitive data.
23. **Object-Oriented and Object-Relational Database Systems**
    Extension of the relational model. Object-oriented concepts in DBMSs. Use of object-relational features in modern applications.
24. **Semi-Structured Data**
    Characteristics of semi-structured data. Storage models and techniques. Introduction to XML, JSON, and related applications.
25. **Parallel and Distributed Database Systems**
    Basic principles of parallel and distributed databases. Data distribution, transaction coordination, and consistency issues in distributed environments.
26. **Advanced Topics and Contemporary Trends**
    Current developments in data management: NoSQL databases, big data management, databases and web applications. Overview of research and technological trends.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• In-class lectures • Workshops • Active learning (hands-on learning) – Experiential learning • Collaborative learning
USE OF INFORMATION &	• Use of ICT in Teaching and Communication with

<table>
<tr><td>COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>students:
PPT presentations
Use of digital tools and platforms
Teaching material, announcements, and communication via the eClass platform
Students’ study of supporting material related to the course content
Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>26</td></tr><tr><td>Laboratory sessions</td><td>13</td></tr><tr><td>Final project</td><td>30</td></tr><tr><td>Weekly projects / assignments</td><td>38</td></tr><tr><td>Independent study</td><td>40</td></tr><tr><td>Final examination</td><td>3</td></tr><tr><td>Total</td><td>150</td></tr></table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others

Please indicate all relevant information about the course assessment and how students are informed</td><td>Formative assessment
Weekly projects: 40%
Assignment (mandatory): 30%
Final examination: 30%</td></tr>
</table>

5. SUGGESTED BIBLIOGRAPHY

- Silberschatz A., Korth H. F., Sudarshan S., *Συστήματα Βάσεων Δεδομένων*, 6η έκδοση, Εκδόσεις Γκιούρδα, 2011.
- Ramakrishnan R., Gehrke J., *Συστήματα Διαχείρισης Βάσεων Δεδομένων*, 3η έκδοση, Εκδόσεις Α. Τζιόλα & Υιοί Ο.Ε., 2012.
- Elmasri R., Navathe S., *Θεμελιώδεις Αρχές Συστημάτων Βάσεων Δεδομένων*, 7η έκδοση, Εκδόσεις Τζιόλα, 2016.
- Παπαδόπουλος, Α. Ν., Τζουραμάνης, Θ., Γούναρης, Α., Μανωλόπουλος, Ι., Συστήματα Βάσεων Δεδομένων – 2η Έκδοση Θεωρία & Πρακτική Εφαρμογή, Εκδ. Νέων Τεχνολογιών, 2020.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly projects / tests: 40% Assignment (mandatory): 30% Final examination: 30%
Implementation Instructions: (3)	Written tests and the final examination will be conducted via eClass on a date and time that will be announced in advance, together with their duration and content, within a reasonable period prior to their administration. The assignment will be submitted via eClass on a specified date.

(28) Please write YES or NO

(29) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(30) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

SOCIAL PSYCHOLOGY APPLIED TO EDUCATION

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΠΔΕ1	**SEMESTER**	2ND
COURSE TITLE	SOCIAL PSYCHOLOGY APPLIED TO EDUCATION		
TEACHINGACTIVITIES *If theECTSCreditsaredistributedin distinct partsofthecoursee.g. lectures, labsetc. IftheECTSCreditsareawardedto the wholecourse, thenplease indicate the teaching hours per week and the corresponding ECTS Credits.*		**TEACHINGHOURSPERWEEK**	**ECTSCREDITS**
		3	5
Please, addlinesifnecessary.Teaching methods and organization of the course are described in section 4.			
COURSETYPE *Background, GeneralKnowledge, Scientific Area, Skill Development*	SKILL DEVELOPMENT		
PREREQUISITES:	NO		
TEACHING & EXAMINATION LANGUAGE:	GREEK		
COURSE OFFERED TO ERASMUSSTUDENTS:			
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/		

2. LEARNING OUTCOMES

Learning Outcomes

Pleasedescribethelearningoutcomesofthecourse: Knowledge, skills and abilitiesacquiredafterthesuccessfulcompletionofthecourse.

After the completion of classes it is expected that students will be able to:

Know the theories explaining aggressive behavior, the types of aggressive behavior and empirical evidence about aggressiveness in the school context, bullying and cyberbullying.
View the educator as the "administrator" of the dynamic field of classroom.
Hold a significant number of good practices to manage classroom and enhance students' academic performance.
Comprehend identity and diversity and efficiently deal with students coming from different ethnocultural backgrounds.
Facilitate acculturation processes.
Apply techniques and practices aiming in managing classroom.
Be in a position to help and support students facing crises in personal, peer and family level.
Offer useful advice to parents about school adaptation and academic performance.
Design basic intervention plans for the enhancement of classroom dynamics.
Identify and deal with discriminatory attitudes and behaviors.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information, ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

Production of new research ideas
Search, analysis and synthesis of data and information, Adaptation to new situations, Decision making, Autonomous work, Teamwork, Production of new research ideas, Equity and Inclusion Respect for the natural environment, Sustainability, Demonstration of social, professional and moral responsibility and sensitivity to gender issues, Critical thinking, Promoting free, creative and inductive reasoning.

3. COURSE CONTENT

1. Violence and aggression – Definition and theoretical conceptualization.
2.Educator's symbolisms – Aggressive behavior in the context of school, bullying
3. Language and communication – Verbal and nonverbal communication, social indexes of language and identity dynamics. Language and ICT.
4.Culture – The meaning of cultural context and the intercultural approach in educational settings.
5. Cultural challenges in the contemporary school context.
6. Identity and diversity – Processes and dynamics underline identity formation
7. Social representations and the construction of social world.
8. Co-operation and competition – Mixed motives and structure of interdependence.
9. Dyads, small groups and intergroup relations – Conflict resolution in the school context.
10. Group performance – Process loss, social facilitation and social inhibition. Social loafing.
11. individual performance in the social context – typology of group tasks and enhancement of performance.
12. Crisis management – Definition and theoretical context. Examples of crisis in classroom and methods to cope with.
13. Bullying and cyber bullying – Definition, forms, motives, the role of bystander, intervention and prevention.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHINGMETHOD *Face to face, Distance learning, etc.*	Face to face	
USEOF INFORMATION&COMMUNICATIONSTECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	E class, e mail, live streaming	
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographicresearch& analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	***Activity***	***Workload/semester***
	Classes attendance	39
	Individual reading and preparation for the written exams	55
	Essay writing (literature review)	51
	Written examination	5

	TOTAL	150
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report,Clinical examination of a patient,Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Essay writing (literature review) – 30% Written examination at the end of the semester – 70%	

5. SUGGESTED BIBLIOGRAPHY

Textbooks:

1. Hogg, M.A. &Vaughan, G.M. (2010). Κοινωνική ψυχολογία (επιμέλεια Αλεξάνδρα Χαντζή). Αθήνα: Gutenberg.
2. Hewstone, M &Stroebe, W. (2007). Εισαγωγή στην κοινωνική ψυχολογία (επιμέλεια Γίωργος Γαλάνης). Αθήνα – Παπαζήσης.

Other Suggested Bibliography

1. Hogg, M.A. (2016). Εγχειρίδιο κοινωνικής ψυχολογίας: Διεργασίες ομάδας (Επιμέλεια Α. Παπαστυλιανού). Αθήνα: Gutenberg.
2. Κοκκινάκη, Φ. (2005). Κοινωνική Ψυχολογία: εισαγωγή στη μελέτη της κοινωνικής συμπεριφοράς. Αθήνα: Εκδόσεις Τυπωθήτω.
3. Smith, P.B. (2011). Διαπολιτισμική κοινωνική ψυχολογία (Επιμέλεια Α. Παπαστυλιανού). Αθήνα: Gutenberg.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	E. LAMPRIDIS
Contact details:	elamprid@he.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Essay writing (literature review) – 30% Written examination at the end of the semester – 70%
Implementation Instructions: (3)	Detailed information are uploads at the e class of the course. Students electronically submit their essays until the 10th week of classes. Written examination through e class platform. Students answer to 30 multiple choice questions randomly presented to each student. Time for answering each question two minutes. In order to pass the course students should answer correctly at least to 50%of the questions. The final mark is calculated taking into account students' performance in the essay as presented above.

(31) Please write YES or NO

(32) Notedowntheevaluationmethodsusedbytheteacher, e.g.

- *written assignment*or/andexercises
- writtenororalexaminationwithdistancelearningmethods, provided that the integrity and reliability of the examination are ensured.

(33) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) incaseof**oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinksfor the examination, the duration of the exam, the gradingsystem, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensuredand any other necessary information.

c) incaseof**written examination with distance learning methods**:the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

RESEARCH METHODOLOGY

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΜΕΘ1	**SEMESTER**	2ND
COURSE TITLE	RESEARCH METHODOLOGY		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Understand the fundamental epistemological foundations of scientific research.
- Comprehend the basic logic underlying a research plan.
- Develop a basic research plan.
- Grasp the research rationale, design, objectives, findings, and conclusions of a scientific paper.
- Learn how to search for, locate, and evaluate credible and reliable scientific sources using electronic databases, libraries, and academic platforms.
- Know the correct format for citing references according to APA and MLA standards.
- Identify the main structural components of a research article (e.g., problem, methodology, results, conclusions) and understand and summarize its key ideas.
- Understand the basic epistemological and ethical principles of research.
- Organize and comprehend a quantitative data research project.
- Be introduced to the fundamental principles of statistical science.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*

Production of new research ideas
• Search, analysis and synthesis of data and information, ICT Use • Adaptation to new situations • Decision making • Autonomous work • Teamwork • Production of new research ideas • Demonstration of social, professional and moral responsibility and sensitivity to gender issues • Critical thinking • Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Research Methodology: Key Epistemological Foundations
2. Concept and Content of Scientific Research
3. The Research Cycle: From Inquiry to Conclusions
4. Literature Review and Evaluation of Scientific Sources: Citing References in APA and MLA Formats
5. Structure of Research Articles: Understanding and Identifying Key Points
6. Analysis of Research Articles: Strategic Information Search
7. Epistemology of Quantitative Research Methods: Historical Background and Contemporary Trends
8. Data Collection Methods
9. Populations and Samples: Sampling Methods
10. Types of Data: Data Analysis
11. Questionnaires as a Data Collection Method
12. Introduction to Statistical Analysis: Basic Principles and Types of Analysis
13. Questionnaire Preparation and Implementation: Statistical Analysis of Questionnaires and Formulating Conclusions

4. LEARNING & TEACHING METHODS - EVALUATION

<table>
<tr><td>TEACHING METHOD
Face to face, Distance learning, etc.</td><td>Face-to-Face Interaction</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>Use of ICT in Teaching and Communication with Students
• Digital Slides
• Videos
• MsTeams/eClass, Webmail</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>39</td></tr><tr><td>Tutorial Exercises</td><td>46</td></tr><tr><td>Study and Analysis of Literature</td><td>60</td></tr><tr><td>Exams</td><td>5</td></tr><tr><td>Total</td><td>150</td></tr></table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development</td><td>Formative

Mid-term written examination: 30%
Final written examination: 70%</td></tr>
</table>

Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

5. SUGGESTED BIBLIOGRAPHY

Foreign:

1. Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge.
2. Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

Greek:

1. Bryman, A. (2017). *Μέθοδοι κοινωνικής έρευνας* (Α. Αϊδίνης, επιμ.). Εκδόσεις Gutenberg.
2. Gay, L. R., Mills, G. E., &Airasian, P. (2017). *Εκπαιδευτική έρευνα* (1η ελληνική έκδοση από την 10η αμερικάνικη). Εκδόσεις Προπομπός.
3. Τσέλιου Ε., Αβραμίδης, Η. και Ζαφείρης, Κ. (2023). (επιστημονική επιμέλεια). MCcartan K. and Robson C. Η έρευνα του πραγματικού κόσμου. Ένα εγχειρίδιο μεθόδων κοινωνικής έρευνας σε εφαρμοσμένα πλαίσια. Μετ. Αυγήτα Ε., Gutenberg, ISBN 9789600124781.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	K. ZAFEIRIS
Contact details:	kzafiris@he.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Mid-term written examination: 30% Final written examination: 70%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam.

(34) Please write YES or NO

(35) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(36) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

3RD SEMESTER

COURSE OUTLINE

CULTURAL STUDIES: INTERDISCIPLINARY APPROACHES

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΤΕΠ5	**SEMESTER**	3RD
COURSE TITLE	CULTURAL STUDIES: INTERDISCIPLINARY APPROACHES		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After the successful completion of the course, participants are expected to:

- Conceptually define "culture."
- Understand the historical evolution of the term from the Renaissance until the 21st century.
- Acquire knowledge and skills for the understanding and interpretation of culture.
- Recognize and investigate the relationship between culture and society, with an emphasis on the era of globalization.
- Comprehend the interactive relationship between the scientific fields of History, Archaeology, (Social) Anthropology, and religions with culture.
- Research printed and digital sources and collect data related to the course topics.
- Understand the basic concepts of documenting cultural data through simple digital means (photography, archiving, categorizing information).
- Realize the position of culture in contemporary school curricula.
- Appreciate the information and knowledge they receive and select the topic for their assignments.
- Utilize sources critically, relate them, and compare them.
- Collaborate on group projects.
- Compose an assignment on a topic of their choice.
- Evaluate their work with reasoned arguments.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information, ICT Use

Project design and management

Equity and Inclusion

Adaptation to new situations *Decision making* *Autonomous work* *Teamwork* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Respect for the natural environment* *Sustainability* *Demonstration of social, professional and moral responsibility and sensitivity to gender issues* *Critical thinking* *Promoting free, creative and inductive reasoning*

- Search, analysis and synthesis of data and information, using the appropriate technologies
- Decision making
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Respect for diversity and multiculturalism
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promotion of free, creative, and inductive thinking

3. COURSE CONTENT

1	Introduction, organization of the course.
2	Assignment of topics for projects. Seminar on scientific writing.
3	Culture: conceptual clarifications. –Introduction to interdisciplinary studies of Culture.
4	Archaeology and Culture: The contribution of archaeology to the understanding of culture.
5	History and Culture: cultural changes and historical events.
6	Anthropology and Culture: Dorism, Exchange, and Economy: Anthropological Cosmologies.
7	Intercultural encounters: Identities and Differences. –The body and embodied cosmologies: Rituals, Performances, and Symbols.
8	Mass Media and Culture: the cultural industry.
9	Culture and Technology: Introduction to Digital Cultural Heritage. Digital art. Simple searches of cultural data.
10	Gender and Culture: the contribution of genders to cultural production.
11	Religion - Culture: relationships and interrelations.
12	Religions and doctrines in Greece, the Balkans, and the Black Sea region. Christianity, Islam, and art in Greece, the Balkans, and the Black Sea region.
13	Evaluative assessment of the course.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face-to-face lectures • Differentiated teaching • Online communication for guidance and feedback during the completion of assignments • Collaboration among student groups
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• Use of ICT in Teaching and Communication with students: • PowerPoint presentations • Videos • Utilization of multimodal-multimedia material in teaching • Communication and coordination of study and assignment preparation through e-class and social media platforms

TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	***Activity***	***Workload/semester***
	Lectures	39
	Interactive Teaching	30
	Study and Analysis of Bibliography	37
	Writing Assignments (Individual or Group)	41
	Examinations	3
	Total	150
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Assignment: 40% Final written examination: 60%	

5. SUGGESTED BIBLIOGRAPHY

1. Appadurai, A. (1996). *Modernity At Large: Cultural Dimensions of Globalization*. Minneapolis: University of Minnesota Press.

2. Bagby, P. (2022). *Culture and History: Prolegomena to the Comparative Study of Civilizations*. Berkeley: University of California Press.

3. Βιτσιλάκη, Χρ. (επιμ.) (2007). *ΦύλοκαιΠολιτισμός*. Αθήνα: Ατραπός.

4. Ferguson, N. (2012). *Πολιτισμός*. Αθήνα: Παπαδόπουλος.

5. Florofsky, G. (2008). *Χριστιανισμός και Πολιτισμός*. Θεσσαλονίκη: ΠΟΥΡΝΑΡΑΣ.

6. Μακρής, Γ. (2011). *Ισλάμ. Πεποιθήσεις, πρακτικές και τάσεις*. Αθήνα: Εκδόσεις Πατάκη.

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8. Pacey, A. (1985). *The Culture of Technology*. Cambridge: The MIT Press.

9. Τσιτσανούδη-Μαλλίδη, Ν. (επιμ.) (2017). *Ελληνική Γλώσσα, Πολιτισμός και ΜΜΕ. Από την αρχαιοελληνική γραμματεία έως σήμερα*. Αθήνα: Gutenberg.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	M. DIMASI
Contact details:	mdimasi@bscc.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Assignment: 40% Final written examination: 60%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via e-Class on a predetermined date.

(37) Please write YES or NO

(38) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(39) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

MATHEMATICS III: MATHEMATICS FOR ARTIFICIAL INTELLIGENCE

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ7	**SEMESTER**	3RD
COURSE TITLE	MATHEMATICS III: MATHEMATICS FOR ARTIFICIAL INTELLIGENCE		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Understand the basic mathematical tools used in artificial intelligence, especially linear algebra, optimization, and probability.
- Interpret data and AI models in geometric and mathematical terms, connecting abstract concepts with practical applications.
- Explain the role of differentiation and optimization in the training process of machine learning algorithms.
- Analyze fundamental elements of the mathematical structure of neural networks, without requiring low-level implementation.
- Recognize the mathematical limits and assumptions of artificial intelligence models, evaluating their behavior on real data.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Ability to search for, analyze and synthesize data and information using appropriate technologies
- Ability to work independently
- Ability to work in teams
- Ability to work in an interdisciplinary environment
- Project planning and management
- Ability to promote free, creative and inductive thinking

3. COURSE CONTENT

1. The Role of Mathematics in Artificial Intelligence

- Why mathematics is the foundation of AI
- Relationship between mathematical models and algorithms
- Overview of mathematical tools used in AI

2. Vectors and Vector Spaces

- Concept of a vector and geometric interpretation
- Vector spaces and basic operations
- Representation of data as vectors

3. Matrices and Matrix Operations

- Matrices as representations of data and transformations
- Matrix operations and their properties
- Matrices in computational systems and algorithms

4. Linear Transformations

- Concept of linear transformation
- Matrices as space transformations
- Applications in AI models

5. Eigenvalues and Eigenvectors

- Concept and geometric meaning
- Their role in data analysis
- Applications in dimensionality reduction

6. Optimization and Cost Functions

- Concept of optimization
- Cost functions and objectives
- Examples from machine learning models

7. Gradient, Derivatives, and Multivariable Differentiation

- Review of derivatives in several variables
- Gradient and geometric interpretation
- Role of differentiation in model training

8. Optimization Methods

- Gradient descent
- Convergence and stability
- Practical issues in computational applications

9. Probability and Random Variables

- Basic concepts of probability
- Random variables and distributions
- Relationship between uncertainty and AI

10. Statistics and Data

- Mean values, variance, and correlation
- Statistical interpretation of data
- Role of statistics in model training

11. Mathematical Description of Neural Networks

- The neuron as a mathematical model
- Activation functions
- Basic mathematical understanding of network training

12. Mathematical Limits and Constraints of AI

- Numerical errors and approximations
- Computational limitations
- Why mathematics sets limits to AI models

13. Conclusions – Feedback

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Lectures in class • Active learning (hands-on learning) – experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• Use of ICT in Teaching and Communication with Students • PowerPoint presentations • Course material, announcements, and communication through the eClass platform • Study of supporting material related to the course content by the students • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	***Activity*** / ***Workload/semester*** Lectures: 39 Final Essay: 30 Weekly Projects: 38 Independent Study: 40 Final Examination: 3 Total: 150
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Assessment Weekly Projects: 40% Assignment: 30% Final written examination: 30%

5. SUGGESTED BIBLIOGRAPHY

Anton, H. 2021. *Εισαγωγή στη Γραμμική Άλγεβρα και Εφαρμογές.* Gutenberg

Δαμιανού, Χ. Χ. 2010. *Εισαγωγή στις Πιθανότητες και τη Στατιστική*. Συμμετρία

Strang, G., 2021. *Γραμμική Άλγεβρα και Εφαρμογές*. Πανεπιστημιακές Εκδόσεις Κρήτης

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	
Contact details:	
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly Projects: 40% Assignment: 30% Written exam: 30%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(40) Please write YES or NO

(41) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(42) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

INTRODUCTION TO DATA SCIENCE

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 7		
COURSE CODE	ΨΕΦ8	**SEMESTER**	3RD
COURSE TITLE	INTRODUCTION TO DATA SCIENCE		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

1. Identify and extract data from public databases and online repositories.
2. Use Python libraries for the analysis and processing of image, text, and digitised documents.
3. Understand the nature and function of data collections in the humanities.
4. Apply tools for web scraping, APIs, and database management.
5. Organise and document humanities data (data curation).
6. Apply preprocessing techniques for cleaning and formatting text and image data.
7. Use Python libraries to prepare data for analysis or machine learning models.
8. Address data-related issues such as missing values, outliers, and unsuitable formats.
9. Analyse text and image data and produce both quantitative and qualitative analyses.
10. Engage in discussions on the ethical dimensions of data analysis in the humanities.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information,

- Decision making.
- Autonomous work
- Working in an international environment
- Working in an interdisciplinary environment
- Production of new research ideas
- Project design and management

3. COURSE CONTENT

This course offers a comprehensive introduction to data science with a particular emphasis on applications in the humanities. Students will learn how to collect, curate, preprocess, and analyse data derived from text, images, and digitised documents. The course covers data extraction from databases and websites (including web scraping and the use of APIs), data preprocessing for analysis, and the application of machine learning and visualisation techniques to datasets from fields such as literature, art, and archaeology.

Particular emphasis is placed on data curation and preprocessing to ensure accuracy and quality of results. Students will acquire practical skills in the use of Python tools for the analysis of textual, visual, and archaeological data, as well as in the application of natural language processing (NLP), image analysis, and machine learning methods. The course also addresses the ethical challenges of data analysis, including issues of data privacy and the responsible use of publicly available resources.

Course Structure

1. Introduction to Data Science and its Applications in the Humanities.
2. Data and Databases in the Humanities.
   Structured and unstructured data; data sources in the humanities.
3. Data Retrieval and Management from Databases
   (e.g. digitised libraries, museums).
4. Web Scraping and APIs
   Techniques for extracting data from websites (e.g. archives, digital museums); use of APIs for accessing online platforms.
   Python tools (e.g. BeautifulSoup, Scrapy, Requests, Tweepy).
5. Data Curation and Preprocessing
   a. Organisation and preparation of data for analysis.
   b. Data quality assurance: cleaning, transformation, and formatting.
   c. Preprocessing techniques for text and image data.
6. Data Curation and Preprocessing: Introduction to Pandas and Practical Applications.
7. Text Analysis for the Humanities
   Techniques for mining and analysing data from historical and literary sources; introduction to topic modelling and sentiment analysis.
8. Data Analysis for Philological Research
   Data sources for philological research (digitised texts, ancient texts, digital archives); application of NLP methods (e.g. NLTK, spaCy, Gensim).
9. Image Analysis and Digitised Documents in the Humanities
   Applications in art, archaeology, and historical documents; analysis of image datasets.
10. Introduction to Computer Vision
    Machine learning and cultural heritage images; tasks such as pattern recognition, classification, and clustering using Python (e.g. TensorFlow, Keras, OpenCV).
11. Data Visualisation in Humanities Datasets.
12. Ethical Issues and Challenges in Data Analysis in the Humanities.
13. Case Studies.

14. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Classroom lectures • Workshops • Active learning (hands-on learning) – Experiential learning • Collaborative group learning

USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Weekly projects: 40% Essay (compulsory): 30% Final written examination: 30%

Activity	***Workload/semester***
Lectures	26
Workshops	13
Essay	30
Weekly projects	38
Independent study	40
Written examination	3
Total	150

15. SUGGESTED BIBLIOGRAPHY

Αβούρης, Ν., Κουκιάς, Μ., Παλιουράς, Β., & Σγάρμπας, Κ. (χ.χ.). *Python: Εισαγωγή στους υπολογιστές*. [Εκδότης δεν αναφέρεται].

Βερύκιος, Β., Κωτσιαντής, Σ., Σταυρόπουλος, Η., & Τζαγκαράκης, Μ. (2018). *Η επιστήμη των δεδομένων* (1η έκδ.). Εκδόσεις Νέων Τεχνολογιών ΙΚΕ.

Géron, A. (2017). *Hands-on machine learning with Scikit-Learn and TensorFlow: Concepts, tools, and techniques to build intelligent systems*. O'Reilly Media.
ISBN: 978-1-4919-6229-9

Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep learning*. MIT Press.
ISBN: 978-0-262-03561-3

Swaroop, C. H. (2015). *A byte of Python* (3rd ed.). Creative Commons Attribution–ShareAlike 4.0 International License.
https://python.swaroopch.com/

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly projects: 40% Essay (compulsory): 30% Final written examination: 30%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(43) Please write YES or NO

(44) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(45) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

ALGORITHMS AND DATA STRUCTURES

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ9	**SEMESTER**	3RD
COURSE TITLE	ALGORITHMS AND DATA STRUCTURES		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After successful completion of the course, students will be able to:

- Understand and analyze algorithmic solutions to problems arising from humanities data.
- Design and implement algorithms using basic data structures, emphasizing clarity and reproducibility.
- Select appropriate data structures based on the nature of the data and the research question.
- Analyze algorithm efficiency at a qualitative level (time and memory), without formal mathematical complexity analysis.
- Apply algorithmic techniques to the processing of texts, metadata, and digitized cultural materials.
- Identify and correct errors in algorithmic implementations (debugging). Document algorithmic procedures in a clear and reusable way suitable for interdisciplinary contexts.
- Critically evaluate algorithmic choices and their limitations in humanities applications.
- Apply basic techniques for verifying program correctness.
- Understand the concept of algorithmic complexity.
- Develop efficient and readable programming solutions.
- Apply principles of code reuse.
- Collaborate in small programming projects following basic software development practices.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and *Project design and management*

information, *ICT Use* *Adaptation to new situations* *Decision making* *Autonomous work* *Teamwork* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Equity and Inclusion* *Respect for the natural environment* *Sustainability* *Demonstration of social, professional and moral responsibility and sensitivity to gender issues* *Critical thinking* *Promoting free, creative and inductive reasoning*
• Search, analysis and synthesis of data and information • Decision making • Autonomous work • Teamwork • Working in an interdisciplinary environment • *Production of new research ideas* • *Critical thinking* • Promoting free, creative, and inductive reasoning	

3. COURSE CONTENT

1	What is an algorithm and why it matters for the Humanities Algorithmic thinking with examples from philology, history, and cultural data
2	Principles of algorithm design Problem decomposition, pseudocode, readability, documentation
3	Basic data structures I: sequences and collections Lists, sets, dictionaries and applications to text and metadata
4	Basic data structures II: composite structures Stacks, queues, and trees as conceptual tools
5	Searching and data retrieval Linear and binary search, indexing concepts
6	Sorting Basic sorting algorithms and their relevance to humanities datasets
7	Algorithmic efficiency Qualitative analysis of time and memory (conceptual Big-O)
8	Text processing algorithms Techniques for searching, comparing, and transforming texts
9	Algorithms for metadata and files Grouping, filtering, and restructuring cultural data
10	Iterative and recursive algorithms When and why to use them
11	Algorithmic errors and debugging Common errors and correction strategies
12	Algorithms and interpretation How algorithmic choices shape research results
13	Ethical and epistemological dimensions Bias, transparency, and limits of automation

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face-to-face lectures • Workshops • Active (hands-on) learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY	• PowerPoint presentations • Digital tools and platforms

<table>
<tr><td>(ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>• eClass for material, announcements, and communication
• Email communication</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>26</td></tr><tr><td>Laboratories</td><td>13</td></tr><tr><td>Final Assignment</td><td>30</td></tr><tr><td>Weekly projects/tests</td><td>38</td></tr><tr><td>Independent study</td><td>40</td></tr><tr><td>Final examination</td><td>3</td></tr><tr><td>Total</td><td>150</td></tr></table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others

Please indicate all relevant information about the course assessment and how students are informed</td><td>• Weekly projects: 40%
• Mandatory assignment: 30%
• Final examination: 30%
Formative assessment model</td></tr>
</table>

5. SUGGESTED BIBLIOGRAPHY

Thomas A. Standish: Data Structures, Algorithms and Software Principles in C, Addison-Wesley. 1995.

Robert Sedgewick: Αλγόριθμοι σε C, Εκδόσεις Κλειδάριθμος, 2006.

Michael T. Goodrich, Roberto Tamassia: Δομές Δεδομένων & Αλγόριθμοι σε JAVA, Εκδόσεις Δίαυλος, 2013

Robert Sedgewick: Αλγόριθμοι σε C, Εκδόσεις Κλειδάριθμος, 2006.

Bruno R. Preiss: Δομές Δεδομένων και Αλγόριθμοι με Αντικειμενοστρεφή Σχεδιαστικά Μορφήματα στη C++, Εκδόσεις Πεδίο, 2016.

Michael T. Goodrich, Roberto Tamassia: Δομές Δεδομένων & Αλγόριθμοι σε JAVA, Εκδόσεις Δίαυλος, 2013

Ν. Μισυρλής: Δομές Δεδομένων με C, 2022.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	• Weekly projects: 40% • Mandatory assignment: 30% • Final examination: 30%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(46) Please write YES or NO

(47) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(48) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

OBJECT-ORIENTED PROGRAMMING II

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ10	**SEMESTER**	3RD
COURSE TITLE	OBJECT-ORIENTED PROGRAMMING II		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Apply core principles of object-oriented programming in combination to more complex programming scenarios.
- Design and evaluate class hierarchies, making informed choices between inheritance and composition.
- Use interfaces and generic types to create flexible and extensible applications.
- Manage collections of objects and data structures in programs with increased complexity and requirements.
- Identify and apply basic design patterns in object-oriented projects.
- Develop object-oriented applications that interact with files or external data sources.
- Design and implement complex object-oriented projects, individually or collaboratively, with clear structure and documentation.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*

Production of new research ideas
• Search, analysis and synthesis of data and information • Decision making • Autonomous work • Teamwork • Working in an interdisciplinary environment • Production of new research ideas • Project design and management

3. COURSE CONTENT

1	**Review of Core Object-Oriented Programming Concepts** • Review of classes, objects, and methods. • Inheritance and polymorphism through simple examples. • Assessment of basic understanding.
2	**Advanced Inheritance and Hierarchy Design** • Multi-level class hierarchies. • Advantages and limitations of inheritance. • Design choices and trade-offs.
3	**Interfaces and Class Contracts** • The concept of an interface as a contract. • Multiple interface implementation. • Design flexibility and extensibility.
4	**Composition and Object Relationships** • "Has-a" versus "is-a" relationships. • Choosing composition over inheritance. • Examples of object-oriented associations.
5	**Advanced Collections and Data Structures** • Lists, sets, and maps. • Management and processing of object collections. • Selecting appropriate data structures.
6	**Generic Types (Generics)** • The concept of generic classes. • Using generics for type safety. • Application examples.
7	**Exception Handling in Larger Programs** • Exception hierarchies. • Designing robust code. • Error handling in complex applications.
8	**Introduction to Design Patterns** • Concept and purpose of design patterns. • Overview of core patterns (e.g. Singleton, Factory). • Their role in structured software development.
9	**Object-Oriented Application Design** • Principles of good design (cohesion, loose coupling). • Organisation of large object-oriented systems. • Code readability and maintainability.
10	**Object-Oriented Programming and Graphics / Multimedia** • Object-oriented modelling of graphical elements. • Using objects in simple graphical applications. • Links to digital arts and creative applications.
11	**Integrating Object-Oriented Code with Files and Data** • Reading from and writing to files. • Managing objects with persistent storage. • Basic principles of data management.

12	**Group-Based Object-Oriented Project Design** • Collaborative design and role distribution. • Documentation of object-oriented systems. • Team-based project organisation.
13	**Capstone Object-Oriented Project** • Development of a complex application fully applying OOP principles. • Project presentation and documentation. • Assessment based on predefined criteria.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face-to-face lectures. • In-class lectures • Workshops • Active (hands-on) and experiential learning • Collaborative (group-based) learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• Use of ICT in Teaching and Communication with students: • PowerPoint presentations • Utilization of multimodal-multimedia material in teaching • Communication and coordination of study and assignment preparation through e-class and social media platforms
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Assessment Weekly Projects: 40% Assignment (obligatory): 30% Final written examination: 30%

Activity	***Workload/semester***
Lectures	26
Workshops	13
Final Assignment	29
Weekly Projects / Tests	45
Study and Analysis of Bibliography	35
Examinations	2
Total	150

5. SUGGESTED BIBLIOGRAPHY

- Gamma, Erich, et al. Design Patterns: Elements of Reusable Object-Oriented Software. Addison-Wesley, 1994.
- Horstmann, Cay S. Core Java Volume I: Fundamentals. 11th ed., Pearson, 2018.
- McLaughlin, Brett, Gary Pollice, and David West. Head First Object-Oriented Analysis and Design.

O’Reilly, 2006.
- Μπαλής, Βασίλειος. Αντικειμενοστραφής Προγραμματισμός. Εκδόσεις Κλειδάριθμος, 2016.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly Projects: 40% Assignment (obligatory): 30% Final written examination: 30%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(49) Please write YES or NO

(50) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(51) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

LITERACIES IN EDUCATION

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΠΔΕ3	**SEMESTER**	3RD
COURSE TITLE	LITERACIES IN EDUCATION		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SKILLS DEVELOPMENT
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Understand the concept of literacy as a set of multimodal discourse practices, incorporating the dynamic and pluralistic approach of multiliteracies and their educational functions.
- Analyse and compare educational texts and practices in school/educational communities, focusing on active citizenship, social participation and intercultural awareness.
- Design and develop activities that promote multiliteracies, integrating the diverse forms of written, spoken, digital and multimodal discourse in the educational process and in the context of interdisciplinary teaching approaches.
- Analyse issues of power and access to knowledge and education through a critical lens, with an emphasis on social inequalities and cultural differences.
- Argue for the literate practices they adopt as they develop into future teachers, highlighting the importance of personal and professional development.
- Understand the role of digital technologies in teaching and become familiar with their use to develop multiliteracies in educational practice.
- Understand and use in oral and written discourse historical concepts such as space, time, causality and multiprismaticity, fostering historical empathy and the ethical dimension of history.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*

Decision making *Autonomous work* *Teamwork* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Sustainability* *Demonstration of social, professional and moral responsibility and sensitivity to gender issues* *Critical thinking* *Promoting free, creative and inductive reasoning*

- Search, analysis and synthesis of data and information,
- ICT Use
- Autonomous work
- Teamwork
- Equity and Inclusion
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promoting free, creative and inductive reasoning
- Working in an interdisciplinary environment
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Critical thinking

3. COURSE CONTENT

1	Introduction	▪ Learning contract ▪ Literacy and Pedagogy of multiliteracies: principles and challenges
2	Language and Literacy	▪ Dimensions and processes of language teaching in the context of literacy pedagogy
3	Academic discourses, academic literacy and scientific literacy	▪ Academic discourses in education and society ▪ Academic literacy: linguistic, cognitive, socio-cultural and critical approaches ▪ The key concepts of scientific literacy ▪ Pluriliteracies across school subjects
4	Digital literacy	▪ Concepts and definitions ▪ Relation to critical literacy and multiliteracies ▪ Common and different fields with information, computer, computational and technological literacy ▪ Correlations with school subjects ▪ Digital literacy and curricula
5	Cultural literacy	▪ Concepts and definitions ▪ Connections with multicultural literacy / knowledge and appreciation of other cultures ▪ Contribution to the development of individual and social identities ▪ Linking cultural and literary literacy ▪ Cultural literacy and curricula
6	Literary literacy	▪ Concepts and definitions ▪ Correlations with: -the teaching of literature and communities of readers -critical literacy and critical pedagogy -school subjects ▪ Literary literacy and curricula
7	AI Literacy	▪ Definition
8	AI Literacy	▪ Types of AI, applications, critical issues and ethics
9	Future literacy	▪ Prediction and transformational skills
10	Historical literacy	▪ Introduction ▪ Historical thinking and awareness ▪ Linguistic and visual representations of History
11	Historical literacy	▪ Historical perspective, historical sources, historical empathy, concepts of historical time and space ▪ Collaborative activities on case studies

12	Historical literacy	▪ Historical literacy at school (pedagogical and historiographical framework, epistemological foundation) ▪ Collaborative activities on curricula and textbooks (assignments)
13	Project presentations and recap	

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Lectures • Active learning (hands-on learning) - Experiential learning • Collaborative learning • Flipped Classroom
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Collaborative educational environments • Communication with students via email • ChatGPT/Claude/Gemini/Copilot/Googlebard
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Cooperative tasks (compulsory): 30% Project (compulsory): 50% Peer-assessment: 20%

Activity	***Workload/semester***
Lectures	39
Study and analysis of bibliography	31
Collaborative tasks within classroom	37
Project	20
Flipped Classroom	15
Simulations	4
Exams	4
Total	150

5. SUGGESTED BIBLIOGRAPHY

Foreign:

- Arslantas, T. K., & Gul, A. (2022). Digital literacy skills of university students with visual impairment: A mixed-methods analysis. Education and Information Technologies, 27(4), 5605–5625.

- Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, 3, 275-285.
- Hirsch, Jr, Kett, J.F. & Trefil, J. (2002). *The New Dictionary of Cultural Literacy*. Boston: Houghton Mifflin.
- Maine, F., V. Cook, & T. Lähdesmäki. 2019. Reconceptualizing Cultural Literacy as a Dialogic Practice. *London Review of Education 17 (3)*: 382–391.
- Meier, C. et al. (2017). An Extended Model of Literary Literacy. In: Leutner, D., Fleischer, J., Grünkorn, J., Klieme, E. (eds) *Competence Assessment in Education. Methodology of Educational Measurement and Assessment*. Springer, Cham.
- Seixas, P., & Morton, T. (2013). *The Big Six Historical Thinking Concepts*. Nelson Education.
- Wineburg, S. (2001). *Historical Thinking and Other Unnatural Acts: Charting the Future of Teaching the Past*. Temple University Press.

Greek:

- Γαβριηλίδου, Ζ., Μητσιάκη, Μ., & Φλιάτουρας, Α. 2021. *100 βασικές ενότητες για τη γλωσσολογία*. Αθήνα: Gutenberg.
- Γαβριηλίδου, Ζ. (2024). *Διδάσκοντας και μαθαίνοντας γλώσσα με το ChatGPT.* Εκδ. Κριτική.
- Δημάση, Μ. & Αραβανή, Ευ. (2013). Η Παιδαγωγική των Πολυγραμματισμών στα σχολικά εγχειρίδια της Γλώσσας του Γυμνασίου: Ουτοπία ή Πραγματικότητα; *MAJESS*, 55-64.
- Kalantzis, M., Cope. B., Αρβανίτη Ε., Στελλάκης, Ν. (2019). *Γραμματισμοί.* Εκδόσεις Κριτική.
- Καρατάσου, Κ.. (2016). Το πρίσμα και τα φίλτρα των ειδών. Η ειδολογία στην υπηρεσία του λογοτεχνικού γραμματισμού. *ΚΕΙΜΕΝΑ για την έρευνα, τη θεωρία, την κριτική και τη διδακτική της Παιδικής και Εφηβικής Λογοτεχνίας*.
- Μητσιάκη, Μ., & Λεύκος, Ι. (2023). Πολυγλωσσικοί γραμματισμοί στις Φυσικές Επιστήμες με τη χρήση του ΕΛεΦυΣ. *Περιοδικό Φιλόλογος*, τ. 188, 192-218.
- Παληκίδης, Ά. (2019). «Διδάσκοντας ιστορία για μια δημοκρατική κοινωνία» στο Γ. Τσιγάρας, Ελ. Ναξίδου, Δ. Στρατηγόπουλος (επιμ.), *Ανδρί κόσμος*. Τιμητικός Τόμος στον Καθηγητή Κωνσταντίνο Κ. Χατζόπουλο, Θεσσαλονίκη 2019, 507-523.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	M. MITSIAKI
Contact details:	mmitsiaki@helit.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Cooperative tasks (compulsory): 30% Project: 50% Peer-assessment: 20%
Implementation Instructions: (3)	All types of assessment will be conducted via the eClass platform.

(52) Please write YES or NO

(53) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(54) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

4TH SEMESTER

COURSE OUTLINE

THE EVOLUTION OF PERFORMING ARTS: MUSIC AND STAGE ARTS FROM ANTIQUITY TO THE PRESENT

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΤΕΠ6	**SEMESTER**	4TH
COURSE TITLE	THE EVOLUTION OF PERFORMING ARTS: MUSIC AND STAGE ARTS FROM ANTIQUITY TO THE PRESENT		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Recognize the key historical milestones in the evolution of the performing arts from antiquity to the present, with an emphasis on music, theater, dance, and contemporary performance art.
- Analyze the social, political, and cultural influences that have shaped the development and formation of the performing arts in various historical periods.
- Explain the enduring relationship between the performing arts and social changes, as well as the formation of cultural identities.
- Explore the role of technology in shaping the performing arts and in the development of new forms of artistic expression, such as contemporary performance art.
- Connect the performing arts to the historical and political conditions of each era, understanding the interaction between the arts and society.
- Evaluate the aesthetic and technological innovations that have influenced the evolution of the performing arts, identifying the defining elements that differentiate various periods.
- Understand the evolution of the performing arts through the interaction between different art forms (music, dance, theater, performance) and their social implications.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and

Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*
Production of new research ideas	

- Search, analysis and synthesis of data and information,
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment.
- Equity and Inclusion
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1	• Introduction • Music: From Ancient Music to Medieval Music Tradition	• Familiarization with students and presentation of the course content, objectives, learning outcomes, and requirements. • Ancient Greek and Roman music and its evolution during the Middle Ages, including religious and secular forms.
2	• Music: Renaissance and Baroque: From Polyphony to Opera	• The development of polyphonic music, monody, and the birth of opera in Italy and its spread across Europe.
3	• Music: The Classical Era: Symmetrical Structure and Sound Balance	• Examination of the Classical Era focusing on great composers such as Mozart, Haydn, and Beethoven. Analysis of the innovations and musical ideas of the period, without focusing on the technical rules of harmony and form.
4	• Music: Romanticism and Impressionism	• Analysis of the main characteristics of 19th-century music, the evolution of forms, and the new composers who contributed to the development of Romanticism and Impressionism.
5	• Music: Contemporary Music: From Twelve-Tone Technique to Jazz, Minimalism, and Electronic Music	• Analysis of the evolution of music in the 20th and 21st centuries, including twelve-tone technique, minimalism, electronic music, and contemporary trends in composition.
6	• Theater: Ancient Greek and Roman Theater: Principles and Developments	• Examination of the theater of ancient Greece and Rome, focusing on the building, genres, and dramaturgy.
7	• Theater: Medieval Theater and Religious Dramas	• Analysis of the forms of theater that emerged during the Middle Ages, with an emphasis on religious events, miracles, and mysteries.
8	• Theater: Renaissance and Classical Theater: From Shakespeare to Molière – The Modern Greek Theater	• Study of the flourishing of theater during the Renaissance and Classicism, with examples from England, France, Spain, and Greece.
9	•Theater: Modern Theater: Realism, Naturalism, and Theatre of the Absurd	• The development of new forms of theatrical expression in the 19th and 20th centuries in Greece and the rest of Europe.
10	•Theater: Epic Theater: Brecht and the Political	• Examination of epic theater focusing on Brecht and his ideas about social and political theater, and the

	Dimension of the Stage	influence of epic theater on contemporary stage art.
11	• Dance: The Evolution and Context of Development of Artistic, European, Latin American, Modern, and Contemporary Forms of Dance	• Historical overview of different Western dance genres, key representatives, their works, and their social dimensions.
12	• Dance: The Evolution of Greek Dance and the Conditions of Its Formation	• Historical overview of Greek dance, ethnographic presentation, the distinct dance genres, the conditions of its formation, and the dance practice in the modern Greek context.
13	• Contemporary Performance Art: Historical Context and Avant-Garde Approaches • Recap	• Historical overview and analysis of significant works and artists in contemporary performance art, emphasizing conceptual and political dimensions. • Recapand resolution of questions. • Student feedback on the course.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Lectures • Active learning (hands-on learning) - Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report,Clinical examination of a patient,Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Weekly Projects: 20% Assignment (mandatory): 30% Final Exam: 50%

Activity	***Workload/semester***
Lectures	39
Essay	37
Weekly Projects / Tests	36
Bibliographic research & analysis	35
Written examination	3
Total	150

5. SUGGESTED BIBLIOGRAPHY

Music

1. Parker, R. (1994), The Oxford illustrated history of opera, Oxford; New York: Oxford University Press, Oxford.

2.West, M. L. (1992). Ancient Greek Music, Oxford: Clarendon Press (= Αρχαία Ελληνικήμουσική, μτφρ. Σ. Κομνηνός, Αθήνα: Παπαδήμας 1999).

3. Βυλερμόζ, Ε. (1978) Ιστορία της Μουσικής – Α΄ και Β΄ Τόμος. Αθήνα

Theater - Performance Art

1. Avgitidou, A. (2023) Performance Art: Education and Practice, NewYork: Routledge

2. Fischer-Lichte, E. (2011/2012), Ιστορία Ευρωπαϊκού δράματος και θεάτρου 1. Από την αρχαιότητα στους Γερμανούς κλασικούς. Ιστορία του θεατρικού δράματος 2. Από τον ρομαντισμό έως σήμεραΑθήνα: Πλέθρον

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Dance

1. Grove L., (2013), The History of Dance: Ballet ,London: Red Books Ltd.

2. Craine&Mackrell, (2002). Oxford Dictionary of Dance, Oxford University Press, New York.

3. Δήμας, Η. Β. Τυροβολά&Μ. Κουτσούμπα, (2010), ΕλληνικόςΠαραδοσιακόςΧορός. Αθήνα.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	G. TSOMIS
Contact details:	gtsomis@helit.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly Projects: 20% Assignment (mandatory): 30% Final Exam: 50%
Implementation Instructions: (3)	Written assessments and the final exam will be conducted via eClass on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(55) Please write YES or NO

(56) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(57) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensuredand any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

MATHEMATICS IV: STATISTICS AND PROBABILITY THEORY

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ11	**SEMESTER**	4th
COURSE TITLE	MATHEMATICS IV: STATISTICS AND PROBABILITY THEORY		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, students will be able to:

1. Understand the basic principles of descriptive statistics and apply appropriate graphical methods and frequency tables for data analysis.
2. Calculate and interpret measures of central tendency (such as mode, median, and mean) as well as measures of variability (such as range, variance, and standard deviation).
3. Apply linear regression techniques (simple and multiple linear regression) and understand the concepts of standard error of estimation and correlation coefficient.
4. Conduct and interpret statistical tests for sample comparison, such as the t-test, the χ^2 test, and analysis of variance (ANOVA).
5. Recognize and apply more advanced statistical techniques, such as cluster analysis, principal component analysis, and correspondence analysis.
6. Analyse time series and understand the importance of time series analysis in the study of data that evolve over time.
7. Use statistical models to interpret and predict data, drawing valid and reliable conclusions from sample data.
8. Apply the above methods to the analysis of real datasets through exercises and examples drawn from the humanities and other fields.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*

Decision making *Autonomous work* *Teamwork* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Sustainability* *Demonstration of social, professional and moral responsibility and sensitivity to gender issues* *Critical thinking* *Promoting free, creative and inductive reasoning*

- Search, analysis and synthesis of data and information, ICT Use
- Adaptation to new situations.
- Decision-making.
- Work in an interdisciplinary environment.
- Generation of new research ideas.
- Demonstration of social, professional, and ethical responsibility and sensitivity to gender issues.
- Exercise of critical thinking and self-criticism.
- Promotion of free, creative, and inductive thinking.
- Respect for diversity and multiculturalism.

3. COURSE CONTENT

1	**Introduction. Descriptive Statistics I:** Variables and observations; sorting and grouping of data; frequency distributions; relative and cumulative frequencies.
2	**Descriptive Statistics II:** Graphical representation of data; measures of central tendency; quartiles; measures of dispersion; symmetric and asymmetric distributions.
3	**Combinatorics and Introduction to Probability:** Counting principles, permutations, arrangements, combinations, random experiments, sample space, and operations with events.
4	**Probability:** Concept and definition of probability; rules of probability; conditional probability and independent events.
5	**Random Variables and Distributions I:** Discrete random variables; probability mass function and cumulative distribution function; graphical representation of discrete distributions.
6	**Probability Distributions II:** Expected value and variance; standard deviation; introduction to continuous random variables.
7	**Continuous Distributions:** Probability density function; properties of the density function; cumulative distribution function of a continuous random variable; uniform distribution.
8	**Special Discrete Distributions I:** Bernoulli distribution; binomial experiment and binomial distribution; geometric distribution.
9	**Special Discrete Distributions II:** Poisson distribution; Poisson approximation to the binomial distribution; hypergeometric distribution.
10	**Special Continuous Distributions I:** Normal and standard normal distribution; sampling distribution of the mean; standard error of the mean; central limit theorem.
11	**Special Continuous Distributions II:** Student's t distribution; properties and applications of the t-distribution; normal approximation to the binomial distribution.
12	**Estimation and Hypothesis Testing:** Sampling and sampling distributions; point estimation; confidence intervals; estimation of the mean in small samples.
13	**Hypothesis Testing:** Null and alternative hypotheses; hypothesis testing procedure; one-tailed and two-tailed tests; tests for one and two means; paired-sample tests.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face to face
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)	• PowerPoint presentations. • Communication via email. • Internet browsers.

<table>
<tr><td>Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>• Software for the screening of documentaries.</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>26</td></tr><tr><td>Laboratory Exercises</td><td>13</td></tr><tr><td>Final Assignment</td><td>37</td></tr><tr><td>Weekly projects/tasks</td><td>31</td></tr><tr><td>Independent study</td><td>40</td></tr><tr><td>Final examination</td><td>3</td></tr><tr><td>Total</td><td>150</td></tr></table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others

Please indicate all relevant information about the course assessment and how students are informed</td><td>Final assessment at the end of the semester.</td></tr>
</table>

5. SUGGESTED BIBLIOGRAPHY

Κοινωνική στατιστική
Eudoxus Book Code: 30177
Edition: 1st ed. / 2003
Author: Καλαματιανού Αγλαΐα Γ.
ISBN: 978-960-02-1686-8
Type: Textbook
Publisher (Distributor): ΕΚΔΟΣΕΙΣ ΠΑΠΑΖΗΣΗ ΑΕΒΕ

Στατιστική: Ανάλυση δεδομένων με χρήση της R
Eudoxus Book Code: 86055461
Edition: 1st ed. / 2019
Authors: Witte Robert, Witte John, Ανδρουλάκης Γεώργιος, Κουνετάς Κωνσταντίνος
ISBN: 9789605863098
Type:Textbook
Publisher (Distributor): ΕΚΔΟΣΕΙΣ ΚΡΙΤΙΚΗ ΑΕ

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	KONSTANTINOS ZAFEIRIS
Contact details:	kzafiris@hs.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly Projects / Assignments: 40% Written Assignment (mandatory): 30% Final Examination: 30%
Implementation Instructions: (3)	The written assessments and the final examination will be conducted via the eClass platform on a date and time announced in advance, together with their duration and content, within a reasonable period prior to their administration. The written assignment will be submitted through eClass on a specified date.

(58) Please write YES or NO

(59) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(60) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

COMPUTER SYSTEMS ARCHITECTURE

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ12	**SEMESTER**	4TH
COURSE TITLE	COMPUTER SYSTEMS ARCHITECTURE		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After the successful completion of the course, participants will be able to:

- understand the fundamental principles of computer architecture and distinguish the levels of computer organisation (processor, memory, storage, input–output),
- explain how instructions are executed in a computer, including the instruction cycle and the basic mechanisms of processing and control,
- analyse the relationship between architectural choices and system performance, taking into account constraints such as speed, memory, and parallelism,
- recognise how computer architecture influences software, operating systems, and programming practices,
- evaluate the key features of modern computing systems, using fundamental architectural concepts to understand real-world computing platforms.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information
- Decision making
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Respect for diversity and multiculturalism
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

1. **Introduction to Computer Architecture**
- What computer architecture is and why it is important
- Distinction between architecture, organisation, and implementation
- Overview of the basic levels of a computing system

2. **Historical Evolution of Computing Systems**
- From early computers to modern systems
- Enduring architectural principles over time
- How technological constraints have influenced design

3. **Data Representation and Arithmetic**
- Representation of integers and real numbers
- Binary system and operations
- Issues of precision, error, and overflow

4. **Instructions and Instruction Set Architecture (ISA)**
- What ISA is and its role
- Basic types of instructions
- Overview of different ISA design approaches

5. **The Instruction Execution Cycle**
- Fetch, decode, and execute stages
- Control flow within the processor
- Basic understanding of pipelining

6. **Central Processing Unit (CPU)**
- Basic structural components of the CPU
- Role of the control unit and the arithmetic logic unit
- Performance and limitations

7. **Memory in Computing Systems**
- Memory hierarchy: registers, cache, main memory
- Why memory is organised hierarchically
- Relationship between speed, cost, and capacity

8. **Storage and Secondary Memory**
- Differences between memory and storage
- Basic principles of storage operation
- Role of storage in overall system performance

9. **Input–Output and Peripherals**
- How a computer communicates with external devices
- Basic I/O principles
- Issues of synchronisation and performance

10. **Multicore Systems and Parallelism**
- From single-core to multicore processors
- Basic concepts of parallelism
- Advantages and limitations

11. **Performance and Evaluation of Computing Systems**
- What constitutes a “fast” system
- Key performance metrics
- How architecture affects efficiency

12. **Computer Architecture in Modern Software**
- How architectural choices influence software

- Relationship between hardware and operating systems
- Why programmers need to understand architecture

13. **Conclusions and Feedback**

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face-to-face lectures. • Seminars, study and analysis of literature with reference to the course units. • Differentiated instruction. • Inquiry-based teaching. • Collaborative teaching.
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• Use of ICT in Teaching and Communication with students: • PowerPoint presentations • Videos • Utilization of multimodal-multimedia material in teaching • Communication and coordination of study and assignment preparation through e-class and social media platforms
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	**Formative Assessment** • Weekly projects: 40% • Coursework (compulsory): 30% • Final examination: 30%

Activity	***Workload/semester***
Lectures	26
Laboratories	13
Final Project	30
Weekly Projects / Assessments	38
Independent Study	40
Final Examination	3
Total	150

5. SUGGESTED BIBLIOGRAPHY

Hennesy, J.L., Patterson, D.A. 2020. *Αρχιτεκτονική Υπολογιστών. Μια ποσοτική προσέγγιση.* Κλειδάριθμος

Stallings, W. 2020. *Οργάνωση και Αρχιτεκτονική Υπολογιστών. Σχεδίαση με στόχο την Απόδοση.*Τζιόλας

Tanenbaum, S.A., 2009. *Η Αρχιτεκτονική των Υπολογιστών. Μια δομημένη προσέγγιση*. Κλειδάριθμος

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	• Weekly projects: 40% • Coursework (compulsory): 30% • Final examination: 30%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(61) Please write YES or NO

(62) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(63) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

COMPUTER NETWORKS

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ13	**SEMESTER**	4TH
COURSE TITLE	COMPUTER NETWORKS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Understand the fundamental concepts and architecture of computer networks.
- Describe the OSI and TCP/IP reference models and their functional layers.
- Explain the operation of core communication protocols (IP, TCP, UDP, HTTP, DNS).
- Implement basic IP addressing and subnetting.
- Understand the principles of routing and packet switching.
- Analyse network performance and congestion.
- Use basic tools for network diagnostics and monitoring.
- Describe key technologies of wired and wireless networks.
- Identify common network threats and security mechanisms.
- Design simple network scenarios for specific applications.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information,

- ICT Use
- *Autonomous work*
- Decision making
- Working in an interdisciplinary environment
- Production of new research ideas
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Introduction to Computer Networks
   Concepts, network categories, and historical development.
2. OSI and TCP/IP Reference Models
3. Physical Layer and Transmission Media
4. Data Link Layer and Ethernet
5. Network Layer – IP and Addressing
6. Subnetting and CIDR
7. Routing and Routing Protocols
8. Transport Layer – TCP and UDP
9. Application Layer – HTTP, FTP, DNS, Email
10. Wireless Networks and Mobile Communications
11. Network Performance and Congestion
12. Network Security – Basic Principles and Mechanisms
13. Modern Trends & Review (Cloud, IoT, SDN)

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Classroom lectures • Workshops • Active learning (hands-on learning) – Experiential learning • Collaborative group learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic*	Formative Weekly projects: 40% Essay (compulsory): 30% Final written examination: 30%

Activity	***Workload/semester***
Lectures	26
Workshops	13
Essay	30
Weekly projects	38
Independent study	40
Written examination	3
Total	150

interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

5. SUGGESTED BIBLIOGRAPHY

1. Αλεξόπουλος, Α., & Λαγογιάννης, Γ. (2016). Τηλεπικοινωνίες και δίκτυα υπολογιστών (10η έκδ.). Εκδόσεις Γιαλός.
2. Ciccarelli, P. (2005). Δίκτυα υπολογιστών: Εισαγωγή στη σύγχρονη τεχνολογία. Εκδόσεις Γκιούρδα.
3. Forouzan, A. B. (2013). Data communications and networking (5th ed.). McGraw-Hill.
4. Forouzan, A. B., & Mosharraf, F. (2011). Δίκτυα υπολογιστών: Προσέγγιση από πάνω προς τα κάτω. Εκδόσεις Παπασωτηρίου.
5. Kurose, J. F., & Ross, K. W. (2018). Δικτύωση υπολογιστών: Προσέγγιση από πάνω προς τα κάτω (7η έκδ.). Εκδόσεις Γκιούρδα.
6. Stallings, W. (2016). Επικοινωνίες υπολογιστών και δεδομένων (8η έκδ.). Εκδόσεις Τζιόλα.
7. Tanenbaum, A. S. (2013). Δίκτυα υπολογιστών (5η έκδ.). Εκδόσεις Κλειδάριθμος.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly projects: 40% Essay (compulsory): 30% Final written examination: 30%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(64) Please write YES or NO

(65) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(66) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

MACHINE LEARNING

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ14	**SEMESTER**	4th
COURSE TITLE	MACHINE LEARNING		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Understand, describe, and interpret key terms related to machine learning.
- Identify the basic problems that can be solved through machine learning techniques, such as classification, regression and clustering.
- Apply appropriate machine learning algorithms to address specific problems.
- Process data using computational techniques to prepare a dataset.
- Evaluate machine learning model accuracy.
- Utilize tools and libraries to implement machine learning models (e.g., Scikit-learn, TensorFlow, Keras).

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Critical thinking and problem-solving ability.
- Analytical ability for understanding and evaluating machine learning algorithms.
- Teamwork.
- Programming skills for developing and implementing machine learning algorithms.
- Data manipulation and understanding of the processes involved in data preprocessing

3. COURSE CONTENT

1	Introduction to Machine Learning	• Introduction of students and presentation of the course content, objectives, learning outcomes, and requirements. • Introduction to Machine Learning and its applications. • Main categories: supervised, unsupervised, and reinforcement learning.
2	Data Processing and Management	• Data cleaning techniques and handling of missing data and noise
3	Linear Models for Classification and Regression	• Linear Regression: theory and applications. •Logistic Regression: introduction and applications in classification. • Training and evaluation of linear models.
4	Non-linear Models and Polynomial Regression	• Polynomial regression and higher-order models. • Relationship between model complexity and overfitting.
5	Support Vector Machines (SVM)	• Theory and basic principles of SVMs. • Use of SVMs for linear and non-linear classification. • Parameter tuning and hyperparameter selection.
6	Decision Trees and Ensemble Methods	• Decision trees: theory, advantages, and disadvantages. • Ensemble models: Random Forests, Bagging, Boosting. • Applications and model optimisation
7	Clustering Algorithms and Unsupervised Learning	• K-means clustering and hierarchical clustering. • Advantages and limitations of unsupervised methods. • Examples of clustering applications.
8	Basic Principles of Neural Networks	• Introduction to artificial neural networks. • Structure and training of neural networks.
9	Deep Learning and Convolutional Neural Networks (CNNs)	• Deep neural networks: basic principles. • Introduction to CNNs and applications in image analysis. • Training and tuning CNNs.
10	Reinforcement Learning Models	• Introduction to reinforcement learning (RL). • Environments, policies, and rewards. • Applications in autonomous systems.
11	Evaluation and Optimisation of Machine Learning Models	• Evaluation metrics: Accuracy, Precision, Recall, F1-score, ROC. • Dataset splitting: training, validation, and testing. • Optimisation techniques: cross-validation, grid search.
12	Tools and Libraries for Machine Learning	• Introduction to Scikit-learn, TensorFlow, Keras, and PyTorch. • Practical implementation of algorithms with these libraries. • Use of Google Colab and other tools for model development.
13	Recapitulation	• Course review and clarification of questions. • Student feedback on the course.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD	• In-class lectures

Face to face, Distance learning, etc.	• Active learning (hands-on learning) – Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in Teaching and Communication with Students • PowerPoint presentations • Teaching material, announcements, and communication via the eClass platform • Students' study of supporting material related to the course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	***Activity*** / ***Workload/semester*** Lectures: 26 Laboratory Exercise: 13 Essay: 30 Weekly projects/tasks: 39 Independent Study: 39 Written examination: 3 Total: 150
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative assessment Progress report: 20% Written final examination: 80% Oral examination upon request by the student.

5. SUGGESTED BIBLIOGRAPHY

Greek-language:

1. Μπότσης Δ, Διαμαντάρας Κ (2019) Μηχανική μάθηση
2. Haykin S (2010) Νευρωνικά Δίκτυα & Μηχανική Μάθηση, 3rd edition

Foreign-language:

1. Andreas C. Müller & Sarah Guido (2016) Introduction to Machine Learning with Python: A Guide for Data Scientists
2. Aurélien Géron (2022) Hands-On Machine Learning with Scikit-Learn, Keras&TensorFlow (3rd Edition)

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Mid-term written examination: 30% Final written examination: 70%
Implementation Instructions: (3)	**Mid-term written examination (30%):** The purpose of the progress report is to assess student performance halfway through the semester, allowing for evaluation of their progress in the machine learning course. The report will be submitted through eClass on a specified date, which will be announced to students during the initial lectures. The evaluation considers students' overall attendance, participation, and performance in the course. **Final written examination (70%):** The final written examination assesses understanding of the fundamental theories, concepts, and principles of the course. The exam will be conducted in person on a date and time announced in advance, along with the duration and content of the exam.

(67) Please write YES or NO

(68) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(69) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

PEDAGOGY, LEARNING AND TEACHING

1. GENERAL

SCHOOL	HUMANITIES			
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE			
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6			
COURSE CODE	ΠΔΕ3	**SEMESTER**	4TH	
COURSE TITLE	PEDAGOGY, LEARNING AND TEACHING			
TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*			**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
			3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.				
COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND			
PREREQUISITES:	NO			
TEACHING & EXAMINATION LANGUAGE:	GREEK			
COURSE OFFERED TO ERASMUS STUDENTS:	YES			
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/			

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Acquire the necessary cognitive and methodological background that will enable them to:
    - Use basic terminology in Pedagogy
    - Become familiar with the themes of Pedagogy, its research methods, and identify its scope and development trajectory
    - Recognize the importance and contribution of Pedagogy, allowing them to progress smoothly in their pedagogical training.
- Develop critical thinking and pedagogical reflection through their engagement with educational movements, contemporary trends, inquiries, and forms of education within the educational field.
- Analyze the levels of approach to pedagogical phenomena, evaluate the factors influencing them, and thus form a clear understanding of the educational environment and its conditions.
- Develop knowledge, skills, and attitudes related to:
    - The phenomenon of learning
    - The implications and applications of learning theories in teaching practice
    - The concept of methodology, which provides opportunities to select alternative solutions for actions toward achieving teaching goals and objectives
    - Evaluation
    - The concepts of curriculum, syllabus, teaching, and textbooks

The student will be able to:

- Design and conduct a lesson, recognizing the importance of active student participation in the process, engage in self-assessment, and utilize relevant feedback effectively.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*
Production of new research ideas	

- Research, analysis, and synthesis of data and information, utilizing the necessary technologies
- Independent work
- Teamwork
- Respect for diversity and multiculturalism
- Demonstration of social, professional, and ethical responsibility and sensitivity to gender issues
- Adaptation to new situations
- Decision-making
- Independent work
- Work in an interdisciplinary environment
- Generation of new research ideas
- Project planning and management
- Exercise of critical thinking and self-criticism
- Promotion of free, creative, and inductive thinking

3. COURSE CONTENT

1. Clarification of basic pedagogical concepts. Goals, means, and factors of education. Pedagogy as a Science (subject matter, utility, scientific foundation). Research in Pedagogical Science. From Pedagogy to the Educational Sciences. Branches and contemporary trends in the Educational Sciences.

2.Overview of the major pedagogical and educational movements from the 18th century to the mid-20th century. Educational and pedagogical movements in the second half of the 20th century: presentation and critical analysis. Differentiated Pedagogy.

3.Aspects and conditions of education: Aims and objectives, the school institution, educational institution, programs and content, methods and techniques, evaluation, school space and time, the relationship between school, family, and society. The role of schools and educators in the modern era.

4.Pedagogical Science and Learning. The Educational Process: Fundamental principles, educational relationships, the lesson, textbooks. Categories of textbooks. Evaluation of school textbooks. The relationship between the textbook, the curriculum, and teaching.

5.The role of Teaching Methodology within the educational sciences. Basic concepts and contents of Didactics: Teaching, Learning, Curriculum, and related concepts (class schedule, curriculum, syllabus). Organization and evaluation of the curriculum. The curriculum and teaching practice. The concept of the "Hidden Curriculum."

6.The phenomenon of learning, as presented by different schools and their representatives, such as Behaviorism, Cognitivism, Gestalt, Humanistic, Constructivist approaches, and others.

7.Applications of learning theories in teaching practice. The role of individual learning factors (e.g., perception, motivation, multiple intelligences, gender, interests, etc.) and, more broadly, the learning profile of students in school processes.

8.Teaching approaches based on dominant cognitive processes, methods, forms of instruction,

group-based learning, and project-based learning/action planning.
9.Differentiated instruction.
10.Evaluation and self-evaluation. Practice in teaching evaluation. Assessment of teaching plans and scenarios.
11.Development of a "Teaching Plan" or "Teaching Scenario" for a specific instructional unit, either on an hourly or broader basis.
12.Presentation of student projects.
13.Reflection.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Lectures • Active learning (hands-on learning) - Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Mid-term written examination: 15% Essay (compulsory): 30% Final written examination: 55%

Activity	***Workload/semester***
Lectures	39
Essay	55
Project Presentation	10
Study and analysis of bibliography	42
Written examination	4
Total	150

5. SUGGESTED BIBLIOGRAPHY

Greek-language bibliography:

- Βρεττός, Ι. (2005). Θεωρίες της Αγωγής τόμος Α. Αθήνα: Gutenberg.
- Βρεττός Ι.Ε. – Καψάλης Α.Γ., Αναλυτικά Προγράμματα, Art of Text, Θεσσαλονίκη 1994
- Δανασσή –Αφεντάκη, Α.(1993). Εισαγωγή στην Παιδαγωγική :τ. Β' Η Εξέλιξη της Παιδαγωγικής και Διδακτικής Σκέψης. Αθήνα.
- Θεοφιλίδης Χ., Διαθεματική Προσέγγιση της Διδασκαλίας, Εκδόσεις Γρηγόρη, Αθήνα 2002.
- Κανάκης Ι.Ν., Η Οργάνωση της Διδασκαλίας-Μάθησης με Ομάδες Εργασίας, Τυπωθήτω – Γιώργος Δαρδανός, Αθήνα 2001.

- Κασσωτάκης Μ.Ι. – Φλουρής Γ., Μάθηση και διδασκαλία. Θεωρία, Πράξη και Αξιολόγηση της Διδασκαλίας, τ. Β΄, Αθήνα 2005.
- Κορρέ Ει., Θέματα Διδακτικής Μεθοδολογίας. Αναλυτικό Πρόγραμμα, Διδασκαλία, Σχολικά Εγχειρίδια, Εκδόσεις Γρηγόρη, Αθήνα 2010.
- Κορρέ, Ει.(2021). Διαφοροποιημένη Παιδαγωγική. Από τη Θεωρία έως τη Διδασκαλία. Αθήνα: Άλκιμο.
- Κουτσελίνη-Ιωαννίδου Μ., Θεωρητικό πλαίσιο για την αξιολόγηση των διδακτικών εγχειριδίων, Νέα Παιδεία, τ. 79, Αθήνα 1996, 70-77.
- Λιαντίνης Δ., Διδακτική, Αθήνα 1990.
- Μαρκαντώνης Ι.Σ., Ανθρωπαγωγική, Τόμος 2, Παιδαγωγική, Ψυχολογία και Διδακτική, Αθήνα 1990.
- Μαρμαρινός Ι.Γ., Το Σχολικό Πρόγραμμα, Αθήνα 1992.
- Ματσαγγούρας Η.Γ., Ομαδοσυνεργατική Διδασκαλία και Μάθηση, Εκδόσεις Γρηγόρη, Αθήνα 2008.
- Ματσαγγούρας Η.Γ., Θεωρία και πράξη της Διδασκαλίας, τ. Β΄, Στρατηγικές Διδασκαλίας, Η Κριτική σκέψη στη Διδακτική Πράξη, Gutenberg, Αθήνα 19994.
- Ξωχέλλης, Π. (2003). Εισαγωγή στην παιδαγωγική. Θεσσαλονίκη: Αφοί Κυριακίδη.
- Χατζηδήμου Δ.(2009).Εισαγωγή στην Παιδαγωγική, Θεσ/νίκη: Αφοί Κυριακίδη.

Foreign-language bibliography.

- Anderson, K.M. (2007). Tips for Teaching: Differentiating instruction to include all
- students. Preventing School Failure 51(3): 49-54.
- Armstrong, T. (1994). Multiple intelligences: Seven ways to approach curriculum .Educational Leadership 52(3): 26-28.
- Bruner, J. (1966). Toward a theory of instruction. Cambridge: Harvard University Pres**s**
- Dunn, R. & Dunn, K. (1993). Teaching secondary students through their individual
- learning styles: Practical approaches for grades 7-12. Boston: Allyn & Bacon.
- Jarvis, P. (2006). The theory and practice of teaching (2nd ed). London & New:Routledge.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	I. KORRE
Contact details:	ikorre@helit.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Mid-term written examination: 15% Essay (compulsory): 30% Final written examination: 55%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(70) Please write YES or NO

(71) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(72) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

5TH SEMESTER

COURSE OUTLINE

DEEP LEARNING

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ15	**SEMESTER**	5TH
COURSE TITLE	DEEP LEARNING		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Understand the fundamental principles of deep learning, including the basic concepts of neural networks, data processing, and machine learning frameworks.
- Apply deep learning techniques for the digitization of diverse types of objects.
- Analyze textual sources using deep learning models.
- Evaluate the impact of artificial intelligence on different types of institutions.
- Develop skills in data management.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information,
- ICT Use
- Autonomous work
- Teamwork

- Equity and Inclusion
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Introduction to Deep Learning and Its Applications

Overview of the basic principles of deep learning

The role of artificial intelligence in the analysis, organization, and use of data

Examples of deep learning applications in education, research, and organizations

2. Neural Networks: Understanding the Basic Principles

Introduction to neural networks and their structure

Basic concepts: neurons, layers, activation functions

Simple applications in classification and prediction problems

3. Convolutional Neural Networks (CNNs) for Image Processing

Understanding CNNs and their applications in image recognition

Analysis and processing of visual data

Case studies: pattern recognition, denoising, and image enhancement

4. Natural Language Processing (NLP) in Digital Texts

How NLP works and its importance in the analysis of large text corpora

Text classification, information extraction, and sentiment analysis

Case study: automatic translation and text summarization

5. Deep Learning and Audio Analysis

Applications of artificial intelligence in the processing and analysis of audio data

Pattern recognition in sound and speech

Audio quality enhancement and restoration

6. Generative Adversarial Networks (GANs) and Data Generation

Introduction to GANs and their basic principles

Generation of synthetic data and simulations

Applications in images, audio, and training datasets

7. Virtual and Augmented Reality Supported by AI

Use of deep learning to enhance VR/AR experiences

Personalization of content and interaction through AI

Case studies: educational and professional simulations

8. Deep Learning for Image Restoration and Enhancement

Techniques for restoration and enhancement of cultural images and videos

Applications in digital image and video archives

9. Data Management in AI Projects

Management and curation of large datasets

Issues of data quality, bias, and ethics in data use

Best practices in AI projects

10. Creation of Virtual Museums with Artificial Intelligence

Step-by-step process for developing digital environments using AI

Personalization of user experience through deep learning

Examples of interactive applications

11. Collaborative Artificial Intelligence Projects

Interdisciplinary collaboration in AI projects

Examples of successful collaborative projects

12. Deep Learning for 3D Representation of Spaces

Use of deep learning for 3D modeling and reconstruction

Analysis of spatial data and environments

Applications in simulation, education, and design

13. Conclusions – Feedback

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Classroom lectures • Workshops • Active learning (hands-on learning) – Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• Use of ICT in Teaching and Communication with Students • PPT presentations • Use of digital tools and platforms • Teaching materials, announcements, and communication via the eClass platform • Student study of supporting materials related to the course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Weekly Projects: 40% Final project: 30% Final Exam: 30%

Activity	***Workload/semester***
Lectures	26
Workshops	13
Final Project	30
Weekly Projects	38
Study	40
Final Exam	3
Total	150

5. SUGGESTED BIBLIOGRAPHY

Goodfellow, I., Bengio, Y., Courville, A. 2016. *Deep Learning.* MIT Press

Ekman, M. 2021. *Learning Deep Learning*. Addison Wesley

Kelleher, D. J. 2019. *Deep Learning*. MIT Press

Raschka, S., Mirjalili, V. 2019. *Python Machine Learning. Machine Learning and Deep Learning with Python, Scikit-Learn, and Tensorflow* 2, Packt Publishing

Sejnowski, T. J. 2018. *The Deep Learning Revolution*. MIT Press

Yong Jin, D. 2021. *Artificial Intelligence in Cultural Production. Critical Perspectives on Digital Platforms*. Routledge

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXX
Contact details:	XXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly Projects: 40% Final project: 30% Final Exam: 30%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(73) Please write YES or NO

(74) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(75) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

AUGMENTED REALITY AND VIRTUAL REALITY

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ16	**SEMESTER**	5TH
COURSE TITLE	AUGMENTED AND VIRTUAL REALITY		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Understand basic concepts of AR/VR (e.g., immersion, interactivity, mixed reality, spatial computing).
- Analyze case studies of AR/VR applications.
- Use tools (e.g., Unity, Unreal Engine, ARKit, WebXR) to develop basic AR/VR projects.
- Integrate 3D models into AR/VR environments for a variety of applications.
- Work collaboratively to develop AR/VR applications that combine technology, storytelling, and artistic or other forms of creative expression.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information,
- ICT Use
- Autonomous work

- Teamwork
- Equity and Inclusion
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Introduction to AR/VR Technologies
Overview of AR/VR technologies
Differences between AR and VR, basic concepts (immersion, interaction)
Examples of successful cultural projects using AR/VR
2. History and Development of AR/VR
Overview of the development of AR/VR
Milestones in their evolution
3. Understanding Immersion and Interaction
Importance of immersion and interaction in AR/VR
How these elements shape the user experience in virtual environments
4. Basic Principles of 3D Modeling and Digital Asset Creation
Introduction to 3D modeling for AR/VR environments
Blender / Maya for creating 3D assets
Creation of digital assets for cultural applications
5. AR in Educational and Professional Environments
The role of AR in learning, training, and real-time information delivery
Applications of AR in education, industry, and services
Challenges of integrating AR into existing structures and organizations
6. VR and Simulation
Use of VR for the simulation of complex environments and processes
Case studies from healthcare, engineering, and spatial design
7. Platforms and Tools: Unity, Unreal Engine, ARKit
Overview of Unity, Unreal Engine, and ARKit
Basic development of AR/VR applications using these platforms
8. User-Centered Design for AR/VR Experiences
Principles of UX/UI design in AR/VR
Case studies
9. AR/VR in Digital Art and Interactive Installations
Applications of AR/VR in contemporary digital art
Examples of interactive installations using AR/VR
10. Multimedia Storytelling with AR/VR
Use of AR/VR for narrative experiences in virtual environments
Combination of multimedia elements (sound, image, text) in virtual environments
11. Challenges and Limitations of AR/VR
Technical challenges in the use of AR/VR (cost, infrastructure, accessibility)
Possible solutions and approaches
12. Future Trends in AR/VR
Emerging trends in AR/VR (AI, metaverse, holograms)
13. Conclusions – Final Project Presentation – Student Feedback

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Classroom lectures • Workshops • Active learning (hands-on learning) – Experiential learning

<table>
<tr><td></td><td>

- Collaborative learning

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USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)

Use of ICT in Teaching, in Laboratory Education, in Communication with students

</td><td>

- Use of ICT in Teaching and Communication with Students
- PPT presentations
- Use of digital tools and platforms
- Teaching materials, announcements, and communication via the eClass platform
- Student study of supporting materials related to the course content
- Communication with students via email

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TEACHING ORGANIZATION

The ways and methods of teaching are described in detail.

Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.

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Activity	***Workload/semester***
Lectures	26
Workshops	13
Final Project	30
Weekly Projects	38
Study	40
Final Exam	3
Total	150

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STUDENT EVALUATION

Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others

Please indicate all relevant information about the course assessment and how students are informed

</td><td>

Formative

Weekly Projects: 40%
Final project: 30%
Final Exam: 30%

</td></tr>
</table>

5. SUGGESTED BIBLIOGRAPHY

Bosworth, M., Lakshmi, S. 2018. *Crafting Stories for Virtual Reality*. Routledge

Greengard, S. 2019. *Virtual Reality*. MIT Press

Jerald, J., 2015. *The VR Book. Human-Centered Design for Virtual Reality*. ACM Books

Trizio, I., Demetrescu, E., Ferdani, I. (eds.) 2023. Digital Restoration and Virtual Reconstructions. Case Studies and Compared Experiences for Cultural Heritage. Springer

Whyte, J., Nikolic, D. 2018. *Virtual Reality and the Built Environment*. Routledge.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXX
Contact details:	XXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly Projects: 40% Final project: 30% Final Exam: 30%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(76) Please write YES or NO

(77) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(78) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

SOFTWARE ENGINEERING

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ17	**SEMESTER**	5TH
COURSE TITLE	SOFTWARE ENGINEERING		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After successful completion of the course, students will be able to:

- Understand the basic concepts, principles, and objectives of Software Engineering.
- Describe the stages of the Software Development Life Cycle (SDLC).
- Analyze user and system requirements and translate them into formal specifications.
- Apply basic software design techniques and architectural patterns.
- Use UML diagrams (Use Case, Class, Sequence) for system modeling.
- Apply principles of clean and well-documented code.
- Understand core development methodologies (Waterfall, Agile, Scrum).
- Apply basic techniques for software testing and quality assurance.
- Collaborate effectively within software development teams.
- Evaluate and improve existing software systems.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and sensitivity to gender issues*
	Critical thinking
	Promoting free, creative and inductive reasoning

Teamwork *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*
• Search, analysis and synthesis of data and information • Decision making • Autonomous work • Teamwork • Working in an interdisciplinary environment • *Production of new research ideas* • *Critical thinking* • Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

1	Introduction to Software Engineering Role, challenges, and the "software crisis"
2	Software Development Life Cycle (SDLC) Waterfall, Iterative, Spiral models
3	Requirements elicitation and analysis
4	Software requirements specification (SRS)
5	Software design – basic principles
6	Software architecture and design patterns
7	UML diagrams Use Case, Class, Sequence
8	Implementation and code quality
9	Software testing Unit, Integration, System testing
10	Quality assurance and software maintenance
11	Agile methodologies and Scrum
12	Software project management
13	Case study and review

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face-to-face lectures • Workshops • Active (hands-on) learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• PowerPoint presentations • Digital tools and platforms • eClass for material, announcements, and communication • Email communication
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	***Activity*** / ***Workload/semester*** Lectures: 26 Laboratories: 13 Final Assignment: 20 Weekly projects/tests: 28 Independent study: 30 Final examination: 3 Total: 120
STUDENT EVALUATION *Description of the evaluation process*	• Weekly projects: 40% • Mandatory assignment: 30%

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	• Final examination: 30% Formative assessment.

5. SUGGESTED BIBLIOGRAPHY

- Pfleeger S. L., *Τεχνολογία λογισμικού από τη θεωρία στην πράξη*, Κλειδάριθμος, Αθήνα, 2002.
- Γιακουμάκης Ε.Α., και Διαμαντίδης Ν.Α., *Τεχνολογία λογισμικού*, Α. Σταμούλης, Αθήνα, 2009.
- Sommerville I., *Βασικές αρχές τεχνολογίας λογισμικού*, Κλειδάριθμος, Αθήνα, 2010.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	• Weekly projects: 40% • Mandatory assignment: 30% • Final examination: 30%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(79) Please write YES or NO

(80) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(81) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

OPERATING SYSTEMS

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ18	**SEMESTER**	5TH
COURSE TITLE	OPERATING SYSTEMS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After successful completion of the course, students will be able to:

- Understand the role and core functions of an operating system.
- Describe the structure and architecture of modern operating systems.
- Analyze process and thread management.
- Explain CPU scheduling algorithms.
- Understand synchronization mechanisms and deadlock handling.
- Describe memory management and virtual memory techniques.
- Analyze input/output device management.
- Understand the structure and operation of file systems.
- Identify basic issues of system security and protection.
- Compare different operating systems (Linux, Windows, Unix) and their design choices.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work

Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

Teamwork *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*
• Search, analysis and synthesis of data and information • Decision making • Autonomous work • Teamwork • Working in an interdisciplinary environment • *Production of new research ideas* • *Critical thinking* • Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

1	Introduction to Operating Systems Role, historical development, basic concepts
2	Structure and architecture of operating systems
3	Processes and process states
4	Threads and multithreading
5	CPU scheduling
6	Process synchronization Semaphores, mutexes, monitors
7	Deadlocks Prevention, avoidance, detection
8	Main memory management
9	Virtual memory
10	Input/output systems
11	File systems
12	Security and protection in operating systems
13	Study of modern operating systems and review

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face-to-face lectures • Workshops • Active (hands-on) learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• PowerPoint presentations • Digital tools and platforms • eClass for material, announcements, and communication • Email communication
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	

Activity	***Workload/semester***
Lectures	26
Laboratories	13
Final Assignment	20
Weekly projects/tests	28
Independent study	30
Final examination	3
Total	120

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	• Weekly projects: 40% • Mandatory assignment: 30% • Final examination: 30% Formative assessment.

5. SUGGESTED BIBLIOGRAPHY

A.S. Tanenbaum, «Σύγχρονα Λειτουργικά Συστήματα», 3η έκδοση, Κλειδάριθμος, 2009.
I. K. Κάβουρας, «Λειτουργικά Συστήματα», 7η έκδοση, Κλειδάριθμος, 2009.
A. Silberschatz, P. Galvin, G. Gagne, «Λειτουργικά Συστήματα», 9η έκδοση, Μ. Γκιούρδας, 2013.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	• Weekly projects: 40% • Mandatory assignment: 30% • Final examination: 30%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(82) Please write YES or NO

(83) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(84) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

DIGITAL DESIGN

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ19	**SEMESTER**	5TH
COURSE TITLE	DIGITAL DESIGN		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, students will be able to:

- understand and apply the basic principles of Boolean algebra and the logic design of digital systems.
- analyse and design combinational digital circuits using truth tables and logic simplification techniques (Karnaugh maps, the Quine–McCluskey method).
- use alternative representations of logical functions (such as BDD and CNF) for the description and analysis of digital circuits.
- describe and implement combinational and sequential digital circuits using hardware description languages (Verilog / SystemVerilog).
- design, analyse, and optimise sequential circuits and state machines using diagrams, state tables, and minimisation techniques.
- integrate memories and algorithmic state machines into the design of complex digital systems.
- use modern industrial CAD/EDA tools for the synthesis, simulation, and verification of digital circuits.
- implement and test digital systems on programmable logic devices (FPGAs), taking into account timing and architectural constraints.
- document and present the design and operation of a digital system using clear and technically accurate writing.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information, Project design and management

ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*
Production of new research ideas	

- Search, analysis and synthesis of data and information, ICT Use
- Adaptation to new situations
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Production of new research ideas
- Project design and management
- Critical thinking
- Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

1	**Introduction to Digital Design and Boolean Algebra** • **Theory:** Boolean algebra, logical variables and operations; role of logic in the design of digital systems. • **Lab:** Familiarisation with the laboratory environment; implementation of simple Boolean functions.
2	**Combinational Circuits and Truth Tables** • **Theory:** Basic combinational logic gates; truth tables and logical functions. • **Lab:** Design and testing of combinational circuits using truth tables.
3	**Simplification of Logical Functions** • **Theory:** Karnaugh maps; Quine–McCluskey method. • **Lab:** Simplification of logical functions and comparison of methods.
4	**Advanced Logic Representations** • **Theory:** Alternative representations (BDD, CNF) and their use in digital design. • **Lab:** Conversion of logical functions into different representations.
5	**Introduction to HDL Languages (Verilog / SystemVerilog)** • **Theory:** Hardware description languages; basic concepts of Verilog/SystemVerilog. • **Lab:** Description of simple combinational circuits in HDL and simulation.
6	**Combinational Circuits with HDL** • **Theory:** Structured description of combinational circuits; hierarchical design. • **Lab:** Implementation and testing of more complex combinational circuits in HDL.
7	**Sequential Elements and Circuits** • **Theory:** Sequential elements, flip-flops, registers, and timing. • **Lab:** Implementation of basic sequential elements in HDL.
8	**State Diagrams and State Tables** • **Theory:** Finite state machines; state diagrams and state tables. • **Lab:** Design and simulation of simple state machines.
9	**Design and Minimisation of Sequential Circuits** • **Theory:** FSM design; state minimisation. • **Lab:** Optimisation of state machines and implementation in HDL.
10	**Memories and Algorithmic State Machines** • **Theory:** RAM memories; algorithmic state machines (ASM). • **Lab:** Design of circuits using memory and ASM diagrams.
11	**CAD/EDA Tools and Circuit Synthesis** • **Theory:** CAD/EDA workflow; introduction to Design Compiler and synthesis processes. • **Lab:** Synthesis and analysis of digital circuits using industrial tools.

12	**FPGA Implementation and Integration** • **Theory:** Practical issues in FPGA implementation; constraints and performance considerations. • **Lab:** Implementation, testing, and presentation of an integrated digital system.
13	**Final Project Presentations and Evaluation** • **Theory:** Presentation and evaluation of student projects; feedback. • **Lab:** Final project presentations and discussion.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• In-class lectures • Workshops • Active learning (hands-on learning) – Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in Teaching and Communication with Students • PowerPoint presentations • Use of digital tools and platforms • Teaching material, announcements, and communication via the eClass platform • Students' study of supporting material related to the course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative assessment Weekly projects: 40% Assignment (mandatory): 30% Final examination: 30%

Activity	***Workload/semester***
Lectures	26
Laboratory Exercises	13
Final Assignment	30
Weekly projects / assignments	26
Independent study	22
Final examination	3
Total	120

5. SUGGESTED BIBLIOGRAPHY

«Ψηφιακή Σχεδίαση», 6η έκδοση, M. Morris Mano, Παπασωτηρίου, 2018, Αθήνα
«Σχεδίαση Λογικών Κυκλωμάτων και Υπολογιστών», 5η Έκδοση, Morris Mano, Charles R. Kime, Tom Martin, ΕΚΔΟΣΕΙΣ Α. ΤΖΙΟΛΑ & ΥΙΟΙ Α.Ε, 2016
«ΨΗΦΙΑΚΗ ΣΧΕΔΙΑΣΗ: ΑΡΧΕΣ ΚΑΙ ΠΡΑΚΤΙΚΕΣ», : J.F. Wakerly, ΕΚΔΟΣΕΙΣ ΚΛΕΙΔΑΡΙΘΜΟΣ ΕΠΕ, 2019

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly projects: 40% Assignment (mandatory): 30% Final examination: 30%
Implementation Instructions: (3)	The written assessments and the final examination will be conducted via the eClass platform on a date and time that will be announced in advance, together with the duration and content of the assessment. The assignment will be submitted through eClass on a specified date.

(85) Please write YES or NO

(86) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(87) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

6TH SEMESTER

COURSE OUTLINE

MUSEUMS, COLLECTION MANAGEMENT, AND EXHIBITION DESIGN

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΤΕΠ7	**SEMESTER**	6TH
COURSE TITLE	MUSEUMS, COLLECTION MANAGEMENT, AND EXHIBITION DESIGN		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- understand the theoretical and ideological tendencies in the context of which the institution of museums was developed
- describe the concept of museum collection management
- recognise the importance of a museum's collection policy
- know how to document objects according to international standards
- describe the concept of museum research
- know the representational function and interpretive approach of the exhibitions
- analyse issues of exhibition narrative
- recognise the different phases of museum practice (collection, museological planning, museographic application, communication)

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information, ICT Use
- Autonomous work
- Teamwork

Project design and management

Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1	Introduction to the theoretical tendencies and the historical development of the creation of museums and museum collections
2	Theories of material culture or else “we and things”. From anthropology to museum negotiations
3	The multiple negotiations of oral history in museums and the management of memory. Difficult memories and Holocaust museums
4	Tangible and intangible heritage inside and outside museums
5	Issues relating to the management of museum collections
6	Museum documentation and its basic principles
7	Museums, means of interpretation and communication with the public. From theory to practice
8	From collecting to exhibition practice. Representational museum strategies and represented communities
9	Exhibition organization and curation: conceptual processing, design rendering
10	Social, cultural, institutional and organisational context of museum exhibitions
11	National art and the invention of museums
12	Museum histories between modernity and modernism: Art history, ideologies and readings of history
13	Museum visit

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Lectures • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process*	Formative

Activity	***Workload/semester***
Lectures	39
Essay	39
Study and analysis of bibliography	39
Exams	3
Total	120

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	Essay (compulsory): 50% Final written examination: 50%

5. SUGGESTED BIBLIOGRAPHY

1. Bishop Claire, *Radical Museology or, What's 'Contemporary' in Museums of Contemporary Art?* London: Koenig Books, 2013
2. Ferguson Bruce W., Greenberg Reesa, Nairne Sandy (eds), *Thinking About Exhibitions*, London: Routledge, 1996
3. Obrist Hans Ulrich and April Elizabeth Lamm, *Everything You Always Wanted to Know About Curating But Were Afraid to Ask*, 2011.
4. Obrist Hans Ulrich, *A brief history of curating*, 2008.
5. Νάκου Ε., *Μουσεία, ιστορίες και Ιστορία*, εκδ. Νήσος, Αθήνα 2009.
6. Νικηφορίδου Α. «Άνθρωποι και εργαλεία. Η ερμηνευτική προσέγγιση της νέας έκθεσης του Μουσείου Ελληνικής Λαϊκής Τέχνης», *Τετράδια Μουσειολογίας* 2, 2005.
7. Σολομών Ε., «Μουσεία και προφορικές μαρτυρίες: ενδυναμώνοντας μνήμες και σχέσεις» στο Μπούσχοτεν Ρ., Βερβενιώτη Τ., Μπάδα Κ., Νάκου Ε., Πανταζής Π., Χατζαρούλα Π.(επιμ.), *Γεφυρώνοντας τις γενιές: διεπιστημονικότητα και αφηγήσεις ζωής στον 21ο αιώνα, Προφορική ιστορία και άλλες βιο-ιστορίες*, Πρακτικά διεθνούς συνεδρίου, Ένωση προφορικής ιστορίας, Βόλος 2013.
8. Σολομών Ε., «Τα μουσεία ως 'αντικείμενα'. Αναζητώντας τρόπους προσέγγισης», στο Γιαλούρη Ε., *Υλικός Πολιτισμός. Η ανθρωπολογία στη χώρα των πραγμάτων*, εκδ. Αλεξάνδρεια, Αθήνα, 2012.
9. Χατζηνικολάου Τ., «Μνήμη και ανάμνηση. Για μια νέα προσέγγιση των μουσειακών συλλογών» στο Νάκου Ε. & Γκαζή Α., *Η Προφορική Ιστορία στα μουσεία και στην εκπαίδευση*, εκδ. Νήσος, Αθήνα, 2015.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	A. MACHA
Contact details:	amacha@he.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Essay (compulsory): 50% Final written examination: 50%
Implementation Instructions: (3)	The final written exam will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(88) Please write YES or NO

(89) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(90) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

WEB APPLICATION DEVELOPMENT

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ20	**SEMESTER**	6TH
COURSE TITLE	WEB APPLICATION DEVELOPMENT		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Know about web technologies, such as client-server architecture, front-end, and back-end technologies.
- Design and develop user-friendly web interfaces using HTML, CSS, and JavaScript, tailored for cultural and artistic organisations.
- Using programming libraries and frameworks to add interactivity to web applications.
- Develop back-end applications using databases and server-side programming.
- Create and manage dynamic web applications, including digital exhibitions and online catalogues, to support the operations of cultural institutions.
- Understand the importance of accessibility and usability in web applications, ensuring that cultural and artistic content is accessible to all users, including people with disabilities.
- Implement online application security policies to protect the integrity and confidentiality of user data in online cultural services.
- Evaluate online applications developed for cultural and artistic organisations and identify best practices.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*

Teamwork *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*sensitivity to gender issues* *Critical thinking* *Promoting free, creative and inductive reasoning*

- Search, analysis and synthesis of data and information, ICT Use
- Autonomous work
- Teamwork
- Promoting free, creative and inductive reasoning
- Production of new research ideas
- Working in an interdisciplinary environment

3. COURSE CONTENT

The course is divided into 13 weeks, the content of which is as follows:

1. Overview of web technologies
2. Basic web languages (HTML and CSS)
3. Introduction to JavaScript
4. Principles of web design
5. Basic principles for web content accessibility
6. Application frameworks for front-end development
7. Server-side programming
8. Online databases
9. Web services and communication protocols
10. Application frameworks for back-end development
11. Content management systems for cultural organisations
12. Platforms for developing digital repositories of cultural content
13. Security of online applications and user data

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Lectures • Active learning (hands-on learning) - Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• Digital assessment tools • Online collaboration tools • Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	

Activity	***Workload/semester***
Lectures	26
Laboratory Exercise	13
Essay	30
Projects	23
Study and analysis of bibliography	25
Written examination	3
Total	120

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam,*	Formative Essay (compulsory): 50% Final written examination: 50%

Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

5. SUGGESTED BIBLIOGRAPHY

- Ackermann, P. (2023). Full Stack Web Development: The Comprehensive Guide (Rheinwerk Computing). Rheinwerk Computing.
- Conolly, R., and Hoar, R. (2015) Προγραμματισμός για το Web, 3η Έκδοση. Εκδόσεις Γκιούρδας.
- Δουληγέρης Χ., Μαυροπόδη Ρ., Κοπανάκη Ε., Καραλής Α. (2017). Τεχνολογίες και Προγραμματισμός στον Παγκόσμιο Ιστό. Εκδόσεις Νέων Τεχνολογιών.
- Κεντερλής, Π. (2017). Ανάπτυξη Διαδικτυακών Εφαρμογών. Εκδόσεις Λύχνος

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Essay (compulsory): 50% Final written examination: 50%
Implementation Instructions: (3)	The written exams will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(91) Please write YES or NO

(92) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(93) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

BIOINFORMATICS

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ21	**SEMESTER**	6TH
COURSE TITLE	BIOINFORMATICS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

1. Understand the fundamental concepts of bioinformatics and use basic bioinformatics tools.
2. Work with programming languages such as Python for data analysis and visualization.
3. Perform sequence alignments and analyse phylogenetic relationships between organisms.
4. Use biological databases to retrieve information.
5. Analyse next-generation sequencing (NGS) data.
6. Apply algorithms for genetic data analysis.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information, ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information, utilizing necessary technologies
- Adaptation to new situations
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1	Introduction to	• Familiarization with the students and presentation of

	Bioinformatics	the course objectives, expected learning outcomes, and requirements • Historical overview of bioinformatics • Importance of bioinformatics and its interdisciplinary nature
2	Introduction to Linux I	• Familiarization with the Linux environment • Basic commands for file navigation and editing
3	Introduction to Linux II	• Installation and execution of programs for bioinformatics analyses
4	Biological Databases	• Introduction to basic biological databases (NCBI, Ensembl, SWISS-MODEL, ENCODE, etc.) • Data retrieval from the databases • Understanding types of data storage files
5	Introduction to Programming with Python	• Installation and basic elements of Python • Variables, data types, functions
6	Introduction to Programming with Python	• Reading files • Data visualization
7	Probability Theory and Statistics	• Random Variables • Distributions • Hypothesis Testing • Probability Theory
8	Algorithms in Bioinformatics	• Types of Algorithms • Sequence Alignment Algorithms • Sequence Similarity Algorithms • Dimensionality Reduction Algorithms
9	Python for Bioinformatics Analysis	• Biopython Package • Sequence Analysis • Simulations
10	Sequence Alignment	• Basic Theory and Methods for Sequence Alignment • Tools for Aligning DNA, RNA, and Proteins
11	Phylogenetics	• Basic Principles of Phylogenetic Tree Construction • Methods and Tools for Inferring Evolutionary Relationships (e.g., PhyML)
12	Analysis of Next-Generation Sequencing Data	• Introduction to Next-Generation Sequencing (NGS) • Processing and Analysis of Large-Scale Data • Tools for NGS Data Analysis (e.g., FastQC, BWA, GATK)
13	Recap	• Recap and resolving questions • Student feedback

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	Face to face
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	PowerPoint presentations Interactive Platforms for Practical Application Teaching material, announcements and communication through the eClass platform Student study of supplementary material related to course content Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical*	

Activity	***Workload/semester***
Lectures	26
Laboratory Exercise	13
Essay	20
Weekly projects/tasks	28

Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc. *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	Study and analysis of bibliography: 30 Written examination: 3 Total: 120
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Final written examination (Multiple choice): 100% Oral examination upon student's request.

5. SUGGESTED BIBLIOGRAPHY

Teaching Aids

Κοσσιδά Σοφία (2008) Βιοπληροφορική, Δυνατότητες και Προοπτικές. Εκδόσεις Νέων Τεχνολογιών ISBN: 978-960-9309-60-8

In addition, scientific articles from high-impact journals from the last decade will be used

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXX
Supervisors:	YES
Evaluation methods:	Weekly projects/tasks: 40% Essay (mandatory): 30% Final written examination: 30%
Implementation Instructions:	The written assessments and the final examination will be conducted via eClass on a date and time that will be announced along with their duration and content in a reasonable time prior to their occurrence. The assignment will be submitted via eClass by a specified date.

COURSE OUTLINE

INTERNET AND CLOUD COMPUTING TECHNOLOGIES

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ22	**SEMESTER**	6TH
COURSE TITLE	INTERNET AND CLOUD COMPUTING TECHNOLOGIES		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, students will be able to:

1. Analyze the fundamental architectures and service models of Cloud Computing (IaaS, PaaS, SaaS).
2. Integrate knowledge from computer networks, operating systems, and web application development for the operation of cloud-based systems.
3. Design and implement basic hosting and deployment scenarios for web applications in cloud environments.
4. Manage storage resources and digital data within cloud infrastructures.
5. Evaluate issues of security, privacy, and legal compliance in cloud environments.
6. Select appropriate cloud technology solutions for cultural and creative applications.
7. Collaborate effectively in teams to implement complex digital projects.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information
- Decision making
- Autonomous work
- Working in an international environment
- Working in an interdisciplinary environment
- Production of new research ideas
- Project design and management
- Critical thinking
- Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

The course *Web and Cloud Computing Technologies*, offered in the sixth semester, functions as an integrative infrastructure course that builds upon knowledge previously acquired in **Computer Networks**, **Operating Systems**, and **Web Application Development**. Its objective is to deepen students' understanding of the design, hosting, management, and scaling of web and digital applications in cloud computing environments, with particular emphasis on applications in the fields of Arts and Culture. Rather than repeating fundamental concepts from the aforementioned subject areas, the course synthesizes them into a unified technological framework, preparing students for more advanced courses in infrastructure, security, and digital applications in subsequent semesters.

Course Structure

Week 1 – The Role of Cloud in the Contemporary Internet

Reframing Internet technologies within distributed systems and cloud computing. From web applications to cloud-native infrastructures. Examples from the cultural sector.

Week 2 – Distributed Systems and Cloud Architectures

Core principles of distributed systems: resilience, availability, and fault tolerance. Centralized and decentralized architectures.

Week 3 – Cloud Service Models

Detailed presentation of IaaS, PaaS, and SaaS. Comparative evaluation and selection of models depending on application requirements.

Week 4 – Cloud Infrastructure and Resource Virtualization

Virtual machines, management of computational resources, elasticity and scalability. Relationship with operating systems.

Week 5 – Containers and Modern Development Practices

Containers: principles and advantages. Differences between virtual machines and containers. Introduction to cloud-native approaches.

Week 6 – Cloud Platforms and Development Environments

Overview of contemporary cloud platforms. Development, testing, and production environments.

Week 7 – Cloud Storage and Digital Content Management

Types of cloud storage, object storage, and management of large-scale data. Applications in digital archives and collections.

Week 8 – Cultural Data and Large-Scale Repositories

Management of cultural data, metadata, and interoperability. Cloud infrastructures for digital cultural heritage.

Week 9 – Security in Cloud Computing

Threats, risks, and fundamental protection mechanisms. Access control, data security, and service protection.

Week 10 – Legal and Regulatory Issues

Privacy, personal data protection, and GDPR compliance. Ethical and professional dimensions of cloud technologies.

Week 11 – Cloud Applications in Arts and Culture

Case studies: digital museums, online exhibitions, cultural platforms, and large-scale projects.

Week 12 – Laboratory Development of Group Project

Design and implementation of a basic cloud application or infrastructure incorporating cultural content. Teamwork and guided supervision.

Week 13 – Presentations and Course Review

Presentation of group projects, discussion of results, and comprehensive course review.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• In-class lectures • Laboratory exercises in cloud environments • Workshops and case studies of cultural applications • Active learning (hands-on learning) – Experiential learning • Collaborative and group-based learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• PowerPoint presentations • Use of digital tools and platforms • Teaching materials, announcements, and communication via the eClass platform • Independent study of supporting material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	***Activity*** / ***Workload/semester*** Lectures: 26 Laboratories: 13 Final Project: 20 Weekly Projects / Tests: 25 Independent Study: 33 Final Examination: 3 Total: 120
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	*Formative and Summative Assessment* Weekly Projects: 40% Mandatory Final Project (Course Assignment): 30% Final Written Examination: 30%

5. SUGGESTED BIBLIOGRAPHY

Buyya, R., Broberg, J., & Goscinski, A. M. (2011). *Cloud computing: Principles and paradigms*. John Wiley & Sons.

Comer, D. E. (2014). *Δίκτυα και διαδίκτυα υπολογιστών* (6η έκδ.). Εκδόσεις Κλειδάριθμος.

Deitel, P. J., Deitel, H. M., & Deitel, A. (2012). *Internet & World Wide Web: How to program* (5th ed.). Prentice Hall.

Erl, T., Mahmood, Z., & Puttini, R. (2013). *Cloud computing: Concepts, technology & architecture*. Prentice Hall.

Kurose, J. F., & Ross, K. W. (2013). *Δικτύωση υπολογιστών: Προσέγγιση από πάνω προς τα κάτω* (6η

έκδ.). Εκδόσεις Χ. Γκιούρδα.
Marinescu, D. C. (2013). *Cloud computing: Theory and practice*. Morgan Kaufmann.
Reese, G. (2009). *Cloud application architectures*. O'Reilly Media.
Velte, A. T., Velte, T. J., & Elsenpeter, R. (2009). *Cloud computing: A practical approach*. McGraw-Hill.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	xxxxxxx
Contact details:	xxxxxxx
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly Projects / Tests: **40%** Mandatory Course Assignment (Final Project): **30%** Final Examination: **30%**
Implementation Instructions: (3)	The written tests and the final examination will be conducted through the eClass platform on a date and time to be announced in advance, together with their duration and scope, within a reasonable period prior to their administration. The course assignment will be submitted via the eClass platform by a specified deadline.

(94) Please write YES or NO

(95) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(96) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

DIGITAL IMAGE AND VIDEO PROCESSING

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ23	**SEMESTER**	6TH
COURSE TITLE	DIGITAL IMAGE AND VIDEO PROCESSING		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SKILL DEVELOPMENT
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Describe and explain the fundamental principles of digital images and digital video (structure, resolution, colour, and temporal dimension), as well as their operation in contemporary digital environments.
- Analyse and compare digital image and video processing techniques in terms of aesthetics, functionality, and suitability for applications in the arts and cultural fields.
- Apply basic methods of image and video processing using appropriate digital tools, within the context of creative, artistic, or cultural projects.
- Design and implement small-scale digital projects that make use of visual material (images and video) for purposes of documentation, storytelling, or cultural representation.
- Critically evaluate digital visual artefacts and processed images/videos, taking into account issues of aesthetics, ethics, intellectual property, and cultural context.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

Production of new research ideas
• Search, analysis and synthesis of data and information • Decision making • Autonomous work • Teamwork • Working in an interdisciplinary environment • Production of new research ideas • Project design and management

3. COURSE CONTENT

1	**Introduction to Digital Images and Digital Video** • Basic concepts of digital representation of images and video and the transition from analogue to digital signals. • Pixels, resolution, aspect ratio, and colour depth as technical parameters of visual material. • Images and video as digital and cultural artefacts in the contemporary cultural environment.
2	**Colour Models and Visual Perception** • Basic colour models (RGB, CMYK, HSV, YCbCr) and their fields of application. • The relationship between the physical and perceptual dimensions of colour. • Applications of colour choices in digital images, art, and cultural representation.
3	**Formats and Types of Digital Images** • Distinction between raster and vector images and their basic principles of operation. • File formats (JPEG, PNG, TIFF, etc.) and their technical characteristics. • Advantages and limitations of each format in artistic and cultural contexts.
4	**Basic Techniques of Digital Image Processing** • Adjustments of brightness, contrast, and saturation. • Geometric transformations and basic image-processing filters. • Introduction to the conscious and critical use of image-processing techniques.
5	**Introduction to Digital Image Analysis** • Basic concepts of image analysis (edges, shapes, features). • The relationship between technical analysis and interpretation of visual content. • Approaches to image analysis within the framework of visual culture.
6	**Introduction to Digital Video** • Structure of digital video: frames, frame rate, and temporal dimension. • Basic concepts of flow and duration in video. • Video as a medium of narrative and cultural documentation.
7	**Digital Video Processing Techniques** • Temporal and spatial transformations in video. • Basic principles of editing, effects, and colour correction. • Creative applications of video processing in digital storytelling.
8	**Compression and Management of Audiovisual Material** • The concept of compression and basic types of codecs. • File formats, image/sound quality, and storage. • Management and archiving of digital audiovisual material for cultural use.
9	**Digital Tools for Image and Video Processing** • Overview of key image- and video-editing software (open-source and proprietary). • Criteria for selecting tools according to the project and cultural context. • Use of tools within the framework of the Digital Humanities.
10	**Creative Processing and Artistic Applications**

	• Digital processing as a creative and artistic practice. • Experimentation with form, colour, and movement. • Creative recomposition of visual material with cultural reference.
11	**Digital Storytelling and Visual Culture** • Images and video as means of narration and communication. • Principles of digital storytelling. • Applications in museum, educational, and cultural environments.
12	**Ethics, Intellectual Property, and Cultural Context** • Core ethical issues in the use of digital visual material. • Intellectual property, licensing, and source attribution. • Responsible management and representation of cultural content.
13	**Ethics, Intellectual Property, and Cultural Context** • Core ethical issues in the use of digital visual material. • Intellectual property, licensing, and source attribution. • Responsible management and representation of cultural content.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face-to-face lectures. • In-class lectures • Workshops • Active (hands-on) and experiential learning • Collaborative (group-based) learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• Use of ICT in Teaching and Communication with students: • PowerPoint presentations • Utilization of multimodal-multimedia material in teaching • Communication and coordination of study and assignment preparation through e-class and social media platforms
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	

Activity	***Workload/semester***
Lectures	26
Workshops	13
Final Assignment	19
Weekly Projects / Tests	35
Study and Analysis of Bibliography	25
Examinations	2
Total	120

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about*	Formative Assessment Weekly Projects: 40% Assignment (obligatory): 30% Final written examination: 30%

the course assessment and how students are informed	

5. SUGGESTED BIBLIOGRAPHY

- Gonzalez, Rafael C., and Richard E. Woods. Digital Image Processing. 4th ed., Pearson, 2018.
- Jack, Keith. Video Demystified: A Handbook for the Digital Engineer. 5th ed., Elsevier/Newnes, 2007.
- Manovich, Lev. The Language of New Media. MIT Press, 2001.
- Παπαθανασίου, Αντώνης. Ψηφιακή Επεξεργασία Εικόνας. Εκδόσεις Κλειδάριθμος, 2008.
- Σαρρής, Νίκος. Εικόνα, Τέχνη και Νέα Μέσα. Εκδόσεις Νήσος, 2010.
- Szeliski, Richard. Computer Vision: Algorithms and Applications. 2nd ed., Springer, 2022.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly Projects: 40% Assignment (obligatory): 30% Final written examination: 30%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(97) Please write YES or NO

(98) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(99) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

7TH SEMESTER

COURSE OUTLINE

GENERATIVE ARTIFICIAL INTELLIGENCE AND APPLICATIONS IN CULTURE

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ24	**SEMESTER**	7TH
COURSE TITLE	GENERATIVE ARTIFICIAL INTELLIGENCE AND APPLICATIONS IN CULTURE		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Understand the basic principles of Generative Artificial Intelligence (Generative AI), as well as the functioning of modern models such as Large Language Models (LLMs), image generation models, and multimodal systems.
- Recognize the capabilities and limitations of generative AI models in relation to the creation, analysis, and interpretation of cultural content.
- Apply generative AI tools for the production, transformation, and documentation of digital cultural material (text, images, audio, or multimedia).
- Utilize Generative AI in cultural applications, such as digital repositories, museums, archives, educational scenarios, cultural narratives, and interpretive practices.
- Develop critical thinking regarding the use of Generative AI in culture, examining issues of reliability, authenticity, copyright, ethics, and model bias.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*

Production of new research ideas
• Search, analysis and synthesis of data and information, ICT Use • Autonomous work • Teamwork • Promoting free, creative and inductive reasoning • Production of new research ideas • Working in an interdisciplinary environment

3. COURSE CONTENT

The course is divided into 13 weeks, the content of which is as follows:

1. Introduction to Generative Artificial Intelligence
2. Basic definitions, concepts, and historical development of Artificial Intelligence
3. Large Language Models (LLMs): operating principles and capabilities
4. Generative models for images, audio, and video
5. Multimodal Artificial Intelligence systems
6. Prompt engineering: techniques and best practices
7. Processing, transforming, and generating digital content with Generative AI
8. Applications of Generative AI to cultural data and digital artifacts
9. Generative AI in museums, archives, and digital repositories
10. Issues of authenticity, reliability, and copyright
11. Ethical, social, and cultural dimensions of Generative AI
12. Design and implementation of Generative AI applications in culture
13. Case studies and current trends in Generative Artificial Intelligence

4. LEARNING & TEACHING METHODS - EVALUATION

<table>
<tr><td>TEACHING METHOD
Face to face, Distance learning, etc.</td><td>• Lectures
• Active learning (hands-on learning) - Experiential learning
• Collaborative learning</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>• Digital assessment tools
• Online collaboration tools
• Use of ICT in teaching and communication with students
• PPT presentations
• Teaching material, announcements and communication through the eClass platform
• Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>26</td></tr><tr><td>Laboratory Exercise</td><td>13</td></tr><tr><td>Essay</td><td>30</td></tr><tr><td>Projects</td><td>23</td></tr><tr><td>Study and analysis of bibliography</td><td>25</td></tr><tr><td>Written examination</td><td>3</td></tr><tr><td>Total</td><td>120</td></tr></table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written</td><td>Formative
Essay (compulsory): 50%
Final written examination: 50%</td></tr>
</table>

Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

5. SUGGESTED BIBLIOGRAPHY

- Crawford, K. (2021). *The atlas of AI: Power, politics, and the planetary costs of artificial intelligence*. Yale University Press.
- Miller, A. I. (2019). *The artist in the machine: The world of AI-powered creativity*. Mit Press.
- Mitchell, M. (2019). *Artificial intelligence: A guide for thinking humans*. Penguin UK.
- Mollick, E. (2024). *Co-intelligence: Living and working with AI*. Penguin.
- Wolfram, S. (2023). *What Is ChatGPT Doing:... and Why Does It Work?*. Wolfram Media.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Essay (compulsory): 50% Final written examination: 50%
Implementation Instructions: (3)	The written exams will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(100) Please write YES or NO

(101) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(102) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

NETWORK MANAGEMENT AND SECURITY OF COMPUTING INFRASTRUCTURES

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ25	**SEMESTER**	7TH
COURSE TITLE	NETWORK MANAGEMENT AND SECURITY OF COMPUTING INFRASTRUCTURES		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Understand the fundamental principles of network and computing infrastructure management.
- Describe architectures and services of modern network infrastructures.
- Use core network management protocols and tools (e.g. SNMP, monitoring tools).
- Apply techniques for performance monitoring and fault detection.
- Identify threats and vulnerabilities in networks and systems.
- Understand basic principles of cryptography and authentication mechanisms.
- Apply network security techniques (e.g. firewalls, IDS/IPS, VPN).
- Analyse security incidents and apply basic response practices.
- Design basic security policies and access control mechanisms.
- Evaluate the security and reliability of a computing infrastructure.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*

Production of new research ideas
• Search, analysis and synthesis of data and information, • ICT Use • Autonomous work • Decision making • Working in an interdisciplinary environment • Production of new research ideas • Critical thinking • Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Introduction to Network Management and Infrastructure Security
   Role of the system and network administrator.
2. Architecture of Computing and Network Infrastructures
3. Network Management Protocols and Standards (SNMP, MIB, NETCONF)
4. Monitoring and Logging Tools
5. Network Performance, Availability, and Reliability
6. Introduction to Information Systems Security
7. Threats, Attacks, and Vulnerabilities
8. Basic Principles of Cryptography and Authentication
9. Network Security Mechanisms: Firewalls, IDS/IPS, VPN
10. Operating System and Server Security
11. Identity and Access Management
12. Security Incident Response and Disaster Recovery
13. Case Studies – Contemporary Threats & Review

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Classroom lectures • Workshops • Active learning (hands-on learning) – Experiential learning • Collaborative group learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development*	Formative Weekly projects: 40% Essay (compulsory): 30% Final written examination: 30%

Activity	***Workload/semester***
Lectures	26
Workshops	13
Essay	30
Weekly projects	38
Independent study	40
Written examination	3
Total	120

Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

5. SUGGESTED BIBLIOGRAPHY

Anderson, R. (2008). *Security engineering* (2nd ed.). Wiley.

Burmester, M., Γκρίτζαλης, Σ., Κάτσικας, Σ., & Χρυσικόπουλος, Β. (2011). *Σύγχρονη κρυπτογραφία*. Εκδόσεις Παπασωτηρίου.

Gollmann, D. (2011). *Computer security* (3rd ed.). Wiley.

Kim, D., & Solomon, M. G. (2010). *Fundamentals of information systems security*. Jones & Bartlett Learning.

Κάτσικας, Σ., Γκρίτζαλης, Δ., & Γκρίτζαλη, Σ. (Επιμ.). (2004). *Ασφάλεια πληροφοριακών συστημάτων*. Εκδόσεις Νέων Τεχνολογιών.

Κάτσικας, Σ., Γκρίτζαλης, Δ., & Γκρίτζαλης, Σ. (2004). *Ασφάλεια πληροφοριακών συστημάτων*. Εκδόσεις Νέων Τεχνολογιών.

Λαμπρινουδάκης, Κ., Μήτρου, Λ., Γκρίτζαλης, Σ., & Κάτσικας, Σ. (2009). *Προστασία της ιδιωτικότητας και τεχνολογίες πληροφορικής και επικοινωνιών: Τεχνικά και νομικά θέματα*. Εκδόσεις Παπασωτηρίου.

Oriyano, S.-P. (2014). *Hacker techniques, tools, and incident handling* (2nd ed.). Jones & Bartlett Learning.

Πάγκαλος, Γ., & Μαυρίδης, Ι. (2002). *Ασφάλεια πληροφοριακών συστημάτων και δικτύων*. Εκδόσεις Ανικούλα.

Pfleeger, C. P. (2006). *Security in computing* (4th ed.). Prentice Hall.

Γκρίτζαλης, Δ. (2004). *Ασφάλεια και πολιτική ανυπακοή στον κυβερνοχώρο*. Εκδόσεις Παπασωτηρίου.

Γκρίτζαλης, Σ., Κάτσικας, Σ., & Γκρίτζαλης, Δ. (2003). *Ασφάλεια δικτύων υπολογιστών: Τεχνολογίες και υπηρεσίες σε περιβάλλοντα ηλεκτρονικού επιχειρείν και ηλεκτρονικής διακυβέρνησης*. Εκδόσεις Παπασωτηρίου.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly projects: 40% Essay (compulsory): 30% Final written examination: 30%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(103) Please write YES or NO

(104) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(105) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

ADVANCED PROGRAMMING TECHNIQUES – GAMIFICATION

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ26	**SEMESTER**	7TH
COURSE TITLE	ADVANCED PROGRAMMING TECHNIQUES – GAMIFICATION		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- design and develop gamification applications that incorporate game mechanics (points, levels, rewards) to enhance user engagement in cultural and educational environments,
- utilize game development platforms such as Unity, Unreal Engine, and their respective programming languages to create interactive applications with educational and cultural elements,
- apply learning theories to engage users and enhance commitment in educational applications,
- leverage gamification as an educational tool to promote cultural heritage and create learning experiences that connect education with interactive technologies,
- analyze and integrate reward and challenge systems to foster interaction and challenge in educational contexts, thereby increasing user engagement,
- design user interfaces (UI) and user experiences (UX) for gamification applications, ensuring usability and user engagement through interactive elements,
- incorporate multimedia and augmented reality (AR) into gamification applications to enhance interactivity and the learning experience in cultural and educational contexts,
- design serious games used in education and cultural heritage, incorporating progressive challenges and educational incentives,
- evaluate gamification applications through the collection and analysis of user data to improve engagement and the learning experience.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*

Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*
Production of new research ideas	

- Search, analysis and synthesis of data and information,
- Adaptation to new situations
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Production of new research ideas
- Project design and management
- Critical thinking and self-reflection
- Equity and Inclusion
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. **Introduction to Gamification and Game-Based Learning**
   Introduction to gamification, key concepts, and game elements (points, levels, rewards). Game-based learning and its application in cultural and educational contexts.
   Workshop: Identifying gamification elements in existing educational and cultural applications.
2. **Categories of Games and Educational Gamification**
   Categories of digital games, with an emphasis on serious games. Application of gamification in education and cultural environments.
   Workshop: Analyzing successful examples of gamification in education.
3. **Application Programming with Unity – Basic Concepts**
   Introduction to Unity, scripting, and interactive features for developing educational applications with game elements.
   Creating the first application in Unity with the integration of points and rewards.
4. **Programming with Unreal Engine – Applications in Cultural Contexts**
   Basic functions of Unreal Engine for developing cultural applications with gamification elements.
   Developing a simple interactive application for a cultural environment using Unreal Engine.
5. **Learning Theories and Their Application in Digital Gamified Applications**
   Analysis of game-based learning and how it enhances user engagement and participation.
   Workshop: Designingeducationalcontentwithin a gamificationframework.
6. **Development of Reward and Challenge Systems**
   Creating and implementing reward and challenge systems in educational and cultural contexts.
   Workshop: Integrating points, levels, and challenges into an application designed in Unity.
7. **User Data Management and Progress Analysis Systems**
   User progress analysis systems and data management with databases and APIs.
   Workshop: Connecting applications with user databases and storing performance data.
8. **User Interface (UI) and User Experience (UX) Design with Gamification**
   Designing UI/UX for gamified applications with a focus on user experience in educational and cultural contexts.
   Workshop: Designinguserinterfacesthatincorporategameelements.
9. **Multimedia and Augmented Reality (AR) for Gamification**
   Using multimedia and augmented reality (AR) to enhance the user experience in applications with game elements.
   Workshop: Creating an application with AR features and integrating gamification mechanisms.
10. **Serious Games and Applications in Education**
    Serious games and their educational value. Examples of games that promote cultural

heritage.
Workshop: Developing a serious game that incorporates educational elements.

11. **Evaluation and Improvement of Gamified Applications**
    Methods for evaluating educational gamified applications. How to collect user data for improving the experience.
    Workshop: Assessing user engagement and participation through data analysis from an existing application.
12. **Prototyping and Pilot Testing**
    Creating prototypes and conducting pilot tests to evaluate educational and cultural applications with game elements.
    Workshop: Developing functional prototypes and testing them in an educational context.
13. **Presentation and Final Evaluation**
    Course review and evaluation of projects. Feedback on the design and development of applications.
    Workshop: Presentation of completed gamification projects by students and final evaluation.

4. LEARNING & TEACHING METHODS - EVALUATION

<table>
<tr><td>TEACHING METHOD
Face to face, Distance learning, etc.</td><td>• Lectures
• Active learning (hands-on learning) - Experiential learning
• Collaborative learning</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>Use of ICT in teaching and communication with students
• PPT presentations
• Use of digital tools and platforms
• Teaching material, announcements and communication through the eClass platform
• Student study of supplementary material related to course content
• Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td>
<table>
<tr><th>Activity</th><th>Workload/semester</th></tr>
<tr><td>Lectures</td><td>26</td></tr>
<tr><td>Laboratory Exercise</td><td>13</td></tr>
<tr><td>Final Project</td><td>20</td></tr>
<tr><td>Weekly Projects / Tests</td><td>28</td></tr>
<tr><td>Bibliographic research & analysis</td><td>30</td></tr>
<tr><td>Written examination</td><td>3</td></tr>
<tr><td>Total</td><td>120</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report,Clinical examination of a patient,Artistic interpretation, Other/Others

Please indicate all relevant information about the course assessment and how students are informed</td><td>Formative

Weekly Projects: 40%
Assignment (mandatory): 30%
Final Exam: 30%</td></tr>
</table>

5. SUGGESTED BIBLIOGRAPHY

Greek Language Bibliography

1.Βούλγαρη, Η., Ροϊνιώτη, Ε., Κουτρομάνος, Γ., Σιντόρης, Χ., &Μάνεσης, Δ. (2024). Ψηφιακάπαιχνίδιακαιμάθηση [Προπτυχιακόεγχειρίδιο]. Κάλλιπος, ΑνοικτέςΑκαδημαϊκέςΕκδόσεις. https://dx.doi.org/10.57713/kallipos-250

Foreign Language Bibliography

1.McGonigal, J. (2011). Reality Is Broken: Why Games Make Us Better and How They Can Change the World. London: Penguin.

2.Kim, S., Song, K., Lockee, B., & Burton, J. (2018). Gamification in Learning and Education: Enjoy Learning Like Gaming. Springer International Publishing, Advances in Game-Based Learning.

3.Mortara, M., Catalano, C.E., Bellotti, F., Fiucci, G., Houry-Panchetti, M., & Petridis, P. (2014). Learning Cultural Heritage by Serious Games. Journal of Cultural Heritage, 15(3), 318-325.

4.Zichermann, G. & Cunningham, C. (2011). Gamification by Design: Implementing Game Mechanics in Web and Mobile Apps. Sebastopol, CA: O'Reilly Media.

5.Schmalstieg, D., &Hollerer, T. (2016). Augmented Reality: Principles and Practice. Boston, MA: Addison-Wesley.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	xxxxxx
Contact details:	xxxxxx
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly Projects: 40% Assignment (mandatory): 30% Final Exam: 30%
Implementation Instructions: (3)	Written assessments and the final exam will be conducted via eClass on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(106) Please write YES or NO

(107) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(108) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensuredand any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

COMMUNICATION

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΤΕΠ8	**SEMESTER**	7TH
COURSE TITLE	COMMUNICATION		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Comprehend the main theories of Communication.
- Be familiar with key theories, terms, concepts and research methods of Communication.
- Understand key features of the components of communication along with social influence processes underlying communication.
- Know the various forms, types, kinds and applications of communication theory and research.
- Comprehend the intercultural dimension of communication.
- To identify and study the persuasive communication processes on both the interpersonal and the intergroup level.
- Be aware of methods and techniques of effective communication.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Adaptation to new situations
- Autonomous work

- Working in an international environment
- Working in an interdisciplinary environment
- Equity and Inclusion
- Critical thinking
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Communication: Theoretical underpinnings (From LeBon to McLuhan and Lasswell).
2. Communication as a process of social influence.
3. Attitudes and attitude change through persuasive communication processes.
4. Constructive components of communication – Source, message, receiver(s).
5. Social cognition and the construction of meaning.
6. Communication effects on emotion and behavior.
7. Forms of communication.
8. Interpersonal communication.
9. Mass communication.
10. Communication and ideology.
11. Communication and culture – Communicational contexts and intercultural differences.
12. Communication strategies – Design and implementation.
13. Practices of effective communication - Reliability of the source, message formation, receivers' acceptance.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	Face to face
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	E class, e mail, live streaming
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	

Activity	*Workload/semester*
Classes attendance	39
Individual reading and preparation for the written exams	37
Essay writing (literature review)	31
Essay presentation in classroom	10
Final exam	3
Total	120

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about*	Essay writing (literature review) – 30% Written examination at the end of the semester – 70%

the course assessment and how students are informed	

5. SUGGESTED BIBLIOGRAPHY

Textbooks

Foss, K.A. (2012). Θεωρίες ανθρώπινης επικοινωνίας (Επιμ. Α. Γαρδικιώτης). Πεδίο.

Σακαλάκη, Μ. (1994). Ψυχολογία της επικοινωνίας: Θεωρητικά ρεύματα και προοπτικές της έρευνας. Παπαζήσης.

Marchand, P.J., Girard, P., Fourquet - Courbet, F., VanDijk, M-P., Ginet,T.A., Burguet, A (2009).ΚοινωνικήψυχολογίατωνΜ.Μ.Ε. (Επιμ. Στ. Παπαστάμου). Πεδίο.

Other Recommended Bibliography

DenisMcQuailω&MarkDeluze (2021). ΜΜΕ και θεωρία της μαζικής επικοινωνίας. Παπαζήσης.

Curran, J. &Gutewitch, M. (Epim.) (2020). ΜΜΕ και κοινωνία. Πατάκης.

Χρηστάκης, Ν. (2016). Ψυχοκοινωνιολογία των μαζικών επικοινωνιών. Gutenberg.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	E. LAMPRIDIS
Contact details:	elamprid@he.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Essay writing (literature review) – 30% Written examination at the end of the semester – 70%
Implementation Instructions: (3)	Detailed information are uploads at the e class of the course. Students electronically submit their essays until the 10th week of classes. Written examination through e class platform. Students answer to 30 multiple choice questions randomly presented to each student. Time for answering each question two minutes. In order to pass the course students should answer correctly at least to 50%of the questions. The final mark is calculated taking into account students' performance in the essay as presented above.

(109) Please write YES or NO

(110) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(111) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

PRACTICUM

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΠΑ1	**SEMESTER**	7TH
COURSE TITLE	PRACTICUM		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SKILLS DEVELOPMENT
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Apply and utilize their acquired theoretical knowledge
- Equip themselves with innovative applied knowledge
- Gain the necessary skills and foundations so that upon graduation, they can fill not only traditional employment settings (e.g., secondary public and private education) but also have alternative employment opportunities.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Research, analysis, and synthesis of data and information, utilizing the necessary technologies
- Adaptation to new situations
- Decision-making
- Independent work
- Teamwork

- Work in an interdisciplinary environment
- Generation of new research ideas
- Respect for diversity and multiculturalism
- Exercise of critical thinking and self-criticism
- Promotion of free, creative, and inductive thinking

3. COURSE CONTENT

The Practicum includes:

A. Attendance at seminars on the following topics:

- The Curriculum for Modern Greek Language and Literature in Secondary Education.
- The Curriculum for Ancient Greek Language and Literature in Secondary Education.
- Basic skills for approaching Byzantine texts.
- Alternative teaching methods (applications of project-based learning and differentiated instruction).
- Reading promotion. Selection of texts, strategies for approaching them, and connecting literature with other arts.
- Creative writing - Reading encouragements.
- The philologist in the Library and Archive.
- Philological editing of texts.
- The philologist in the Museum: Management of cultural heritage.
- Techniques of Dramatization.
- Dramatic Poetry and Dramatization: Skills for approaching ancient theater.
- The utilization of Cinema in education.
- "Επιχειρεῖν": Design and implementation of a business plan, taking into account internal environmental parameters.

B. Practical exercise in an organization.

C. Preparation of a project.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Lectures • Active learning (hands-on learning) - Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test,*	Formative In the final evaluation, the following are taken into account: • Successful completion of practical training in an organization: 70%

Activity	*Workload/semester*
Lectures	39
Internship in an organization	70
Essay	11
Total	120

Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	• Assignment (compulsory): 30%

5. SUGGESTED BIBLIOGRAPHY

Greek-language bibliography:

Ιορδανίδου, Α. (1999). Οδηγός της Νεοελληνικής Γλώσσας, α΄ τόμος. Αθήνα: Πατάκης

Κόκκινος, Γ., Αλεξάκη Ε. (2002). Διεπιστημονικές προσεγγίσεις στη μουσειακή αγωγή. Αθήνα: Μεταίχμιο.

Κορρέ, Ει.(2021). Διαφοροποιημένη Παιδαγωγική. Από τη Θεωρία έως τη Διδασκαλία. Αθήνα: Άλκιμο.

Σέξτου, Π.(2007). Πρακτικές εφαρμογές θεάτρου στην πρωτοβάθμια και δευτεροβάθμια εκπαίδευση. Αθήνα: Καστανιώτης

Tomlinson, C. A. (2015). Πώς να διαφοροποιήσουμε τη διδασκαλία σε τάξεις μεικτής ικανότητας. Αθήνα: Εκδόσεις Γρηγόρη.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	M. DIMASI
Contact details:	mdimasi@bscc.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Mid-term written examination: 15% Essay (compulsory): 30% Final written examination: 55%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(112) Please write YES or NO

(113) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(114) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

8TH SEMESTER

COURSE OUTLINE

NATURAL LANGUAGE PROCESSING

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ27	**SEMESTER**	8TH
COURSE TITLE	NATURAL LANGUAGE PROCESSING		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Apply basic knowledge of Python and use it for natural language processing, text processing, data analysis, and visualization.
- Utilize essential Python libraries, such as NLTK for text analysis, and packages like Gensim and Stanza for more complex machine learning tasks.
- Visualize data using tools such as Matplotlib, Networkx, Seaborn, and Bokeh.
- Use NLP tools to conduct research, developing critical thinking and reproducibility.
- Analyze text data to address research questions in the humanities.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information,
- ICT Use
- Adaptation to new situations

- Critical thinking
- Promoting free, creative and inductive reasoning
- Working in an interdisciplinary environment
- Project design and management

3. COURSE CONTENT

1. **Introduction to NLP**
   Week 1: Definition and significance of NLP, applications such as chatbots and translation systems, and basic challenges.
2. **Basic Linguistic Elements**
   Week 2: Linguistic levels and their role in NLP.
3. **Text Preprocessing and Representation**
   Week 3: Text preprocessing (tokenization, stop word removal) and tools like NLTK and spaCy.
   Week 4: Text representation: Bag of Words and embeddings (Word2Vec, GloVe).
4. **Language Models**
   Week 5: Introduction to language models and n-gram models.
   Week 6: Evaluation of language models: complexity and accuracy.
5. **Syntactic Parsing**
   Week 7: The importance of syntactic parsing and Part-of-Speech tagging.
   Week 8: Use of tools for computational syntactic analysis.
6. **NLP Applications**
   Week 9: Sentiment analysis and basic classification models.
   Week 10: Named Entity Recognition (NER) and how it works.
7. **Introduction to Deep Learning for NLP**
   Week 11: Basics of neural networks and applications in NLP.
   Week 12: Advanced word representations and models like Word2Vec.
8. **Current Trends**
   Week 13: Machine translation, comparison with statistical translation, and introduction to models like BERT and GPT.

4. LEARNING & TEACHING METHODS - EVALUATION

<table>
<tr><td>TEACHING METHOD
Face to face, Distance learning, etc.</td><td>• Classroom lectures
• Workshops
• Active learning (hands-on learning) – Experiential learning
• Collaborative group learning</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>Use of ICT in teaching and communication with students
• PPT presentations
• Teaching material, announcements and communication through the eClass platform
• Student study of supplementary material related to course content
• Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td>
<table>
<tr><th>Activity</th><th>Workload/semester</th></tr>
<tr><td>Lectures</td><td>26</td></tr>
<tr><td>Workshops</td><td>13</td></tr>
<tr><td>Essay</td><td>20</td></tr>
<tr><td>Weekly projects</td><td>28</td></tr>
<tr><td>Independent study</td><td>30</td></tr>
<tr><td>Written examination</td><td>3</td></tr>
<tr><td>Total</td><td>120</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process</td><td>Formative</td></tr>
</table>

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	Weekly projects: 40% Essay (compulsory): 30% Final written examination: 30%

5. SUGGESTED BIBLIOGRAPHY

Briggs, J. (2022). *Natural language processing for semantic search*.

Clark, C., Fox, S., & Lappin, S. (2010). *The handbook of computational linguistics and natural language processing*. Blackwell Handbooks in Linguistics.

Jurafsky, D., & Martin, J. H. (2000). *Speech and language processing: An introduction to natural language processing, computational linguistics, and speech recognition*. Prentice-Hall.

Manning, C. D., & Schütze, H. (1999). *Foundations of statistical natural language processing*. MIT Press.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly projects: 40% Essay (compulsory): 30% Final written examination: 30%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(115) Please write YES or NO

(116) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(117) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

HUMAN–COMPUTER INTERACTION

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ28	**SEMESTER**	8th
COURSE TITLE	HUMAN–COMPUTER INTERACTION		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- design and implement interactive audiovisual projects integrating image, sound, and motion using tools such as Unity, Unreal Engine, and the Adobe Creative Suite.
- use programming languages such as C# and Python to develop digital applications and augmented and virtual reality (AR/VR) experiences with tools such as Vuforia and the Oculus SDK.
- apply digital cultural content management platforms for the creation and management of interactive exhibitions and cultural events.
- create multimedia narrative experiences that integrate technology into storytelling and the content of digital exhibitions.
- design audience experiences using augmented and virtual reality technologies, combining art and technology.
- evaluate and optimise audience interaction with digital applications, taking into account aesthetic, functional, and accessibility parameters.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*

Autonomous work *Teamwork* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Demonstration of social, professional and moral responsibility and sensitivity to gender issues* *Critical thinking* *Promoting free, creative and inductive reasoning*

- Search, analysis and synthesis of data and information, ICT Use
- Adaptation to new situations
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Production of new research ideas
- Project design and management
- Critical thinking
- Equity and Inclusion
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

1	**Introduction to Human–Computer Interaction** • **Theory:** Overview of digital exhibitions and cultural events, emerging technologies, digital tools, course objectives, and course structure. • **Lab:** Introduction to digital tools and platforms; familiarisation with the Unity environment.
2	**Basic Principles of Interactive Experience Design** • **Theory:** Interactive design theories; user experience (UX/UI); examples from cultural events and exhibitions. • **Lab:** Design of a basic interactive experience using Unity or Unreal Engine.
3	**Programming Environments: Unity or Unreal Engine I** • **Theory:** Introduction to Unity or Unreal Engine programming environments; basic functions and interface**.** • **Lab:** Creation of a basic scene using Unity or Unreal Engine; configuration of interactions.
4	**Programming Environments: Unity or Unreal Engine II** • **Theory:** Advanced techniques in Unity or Unreal Engine. • **Lab:** Integration of 3D models and animation into an interactive scene.
5	**Programming Languages for Interactive Applications: C# and Python** **Theory:** Use of C# and Python for interactive applications. **Lab:** Development of basic scripts for interactions in Unity or Unreal Engine.
6	**Digital Multimedia Tools: Image and Sound** • **Theory:** Use of GIMP and Audacity for multimedia creation and audio editing. • **Lab:** Creation of multimedia assets (images and animations) and integration into interactive applications.
7	**Digital Cultural Content Management Platforms** • **Theory:** Introduction to platforms for digital cultural content management. • **Lab:** Practical use and creation of a digital exhibition.
8	**Augmented Reality (AR) Development I** • **Theory:** Introduction to augmented reality (AR) and related tools such as Vuforia. • **Lab:** Development of a basic AR application and implementation of interactions.
9	**Virtual Reality (VR) Development I** • **Theory:** Introduction to virtual reality (VR) and related tools such as the Oculus SDK. • **Lab:** Creation of a basic VR application; development of virtual environments and interactions.
10	**AR/VR Application Development II** • **Theory:** Advanced AR/VR techniques; integration of multimedia and narrative elements. • **Lab:** Development of advanced AR/VR applications and integration of multimedia.
11	**Multimedia Storytelling and Digital Exhibitions** • **Theory:** Principles of multimedia storytelling; combining multimedia and interactive

	narratives. • **Lab:** Creation of multimedia narratives for digital exhibitions.
12	**Evaluation of Interactive Experiences and User Interaction** • **Theory:** Methods for evaluating interactive experiences; UX adaptation; aesthetic and accessibility considerations. • **Lab:** Evaluation and improvement of an interactive application.
13	**Final Project Presentations and Evaluation** • **Theory:** Presentation and evaluation of student projects; feedback. • **Lab:** Final project presentations and discussion.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• In-class lectures • Workshops • Active learning (hands-on learning) – Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in Teaching and Communication with Students • PowerPoint presentations • Use of digital tools and platforms • Teaching material, announcements, and communication via the eClass platform • Students' study of supporting material related to the course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	

Activity	***Workload/semester***
Lectures	26
Laboratory Exercise	13
Final Assignment	30
Weekly projects / assignments	26
Independent study	22
Final examination	3
Total	120

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative assessment Weekly projects: 40% Assignment (mandatory): 30% Final examination: 30%

5. SUGGESTED BIBLIOGRAPHY

Μπούνια, Α., Καταπότη, Δ. (επιμ.) (2021). Αναδυόμενες τεχνολογίες και πολιτιστική κληρονομιά. Αθήνα: Αλεξάνδρεια.

Hartson, R., &Pyla, P. (2012). The UX Book: Process and Guidelines for Ensuring a Quality User Experience. Waltham, MA: Morgan Kaufmann.

Hocking, J. (2018). Unity in Action: Multiplatform Game Development in C#. Shelter Island, NY: Manning Publications.
Jerald, J. (2015). The VR Book: Human-Centered Design for Virtual Reality. New York, NY: Morgan & Claypool Publishers.
Marty, P. F., & Burton Jones, K. (2008). Museum Informatics: People, Information, and Technology in Museums. New York, NY: Routledge.
Miller, C. H. (2019). Digital Storytelling: A Creator's Guide to Interactive Entertainment. New York, NY: CRC Press.
Moniem, M. A. (2016). Mastering Unreal Engine: A Beginner's Guide. Birmingham, UK: Packt Publishing.
Mullen, T. (2011). Prototyping Augmented Reality. Hoboken, NJ: Wiley.
Parisi, T. (2015). Learning Virtual Reality: Developing Immersive Experiences and Applications for Desktop, Web, and Mobile. Sebastopol, CA: O'Reilly Media.
Preece, J., Rogers, Y., & Sharp, H. (2015). Interaction Design: Beyond Human-Computer Interaction. Chichester, UK: John Wiley & Sons.
Schmalstieg, D., &Hollerer, T. (2016). Augmented Reality: Principles and Practice. Boston, MA: Addison-Wesley.
Vaughan, T. (2014). Multimedia: Making It Work. New York, NY: McGraw-Hill Education.
Walhimer, M. (2015). Designing Museum Experiences. Lanham, MD: Rowman & Littlefield.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly projects: 40% Assignment (mandatory): 30% Final examination: 30%
Implementation Instructions: (3)	The written assessments and the final examination will be conducted via the eClass platform on a date and time that will be announced in advance, together with the duration and content of the assessment. The assignment will be submitted through eClass on a specified date.

(118) Please write YES or NO

(119) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(120) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

GEOGRAPHIC INFORMATION SYSTEMS (GIS)

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ29	**SEMESTER**	8TH
COURSE TITLE	GEOGRAPHIC INFORMATION SYSTEMS (GIS)		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Understand the fundamental concepts of Geographic Information Systems (GIS) and their usefulness in the preservation and management of cultural heritage.
- Apply GIS tools and techniques for the analysis and visualisation of spatial data related to cultural heritage sites, objects, and landscapes.
- Collect, digitise, and manage spatial data.
- Conduct spatial analysis and mapping for the interpretation of historical and archaeological landscapes.
- Create three-dimensional models of cultural and archaeological sites using GIS for the documentation, preservation, and presentation of cultural heritage monuments.
- Successfully integrate GIS into projects for the preservation and protection of cultural heritage.
- Evaluate the effectiveness of GIS integration in cultural heritage projects.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*

Working in an interdisciplinary environment *Promoting free, creative and inductive reasoning* *Production of new research ideas*
• Search, analysis and synthesis of data and information, ICT Use • Autonomous work • Teamwork • Promoting free, creative and inductive reasoning • Production of new research ideas • Working in an interdisciplinary environment

3. COURSE CONTENT

The course is divided into 13 weeks, the content of which is as follows:

14. Introduction to Geographic Information Systems (GIS) in Culture
15. Key definitions, concepts, and tools of Topography
16. Fundamental concepts of GIS
17. Collection of spatial data: methods and tools
18. Digital mapping of cultural heritage
19. Spatial analysis using GIS tools
20. Management of geospatial data and metadata in culture
21. Digital terrain models and three-dimensional modelling in cultural spaces
22. Remote sensing and aerial photography in cultural heritage
23. Visualisation and dissemination of spatial data related to cultural heritage
24. Planning for the protection of cultural heritage using GIS
25. Analysis and mapping of archaeological sites with GIS
26. Application of GIS in museum exhibitions

4. LEARNING & TEACHING METHODS - EVALUATION

<table>
<tr><td>TEACHING METHOD
Face to face, Distance learning, etc.</td><td>• Lectures
• Active learning (hands-on learning) - Experiential learning
• Collaborative learning</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>• Digital assessment tools
• Online collaboration tools
• Use of ICT in teaching and communication with students
• PPT presentations
• Teaching material, announcements and communication through the eClass platform
• Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>26</td></tr><tr><td>Laboratory Exercise</td><td>13</td></tr><tr><td>Essay</td><td>30</td></tr><tr><td>Projects</td><td>23</td></tr><tr><td>Study and analysis of bibliography</td><td>25</td></tr><tr><td>Written examination</td><td>3</td></tr><tr><td>Total</td><td>120</td></tr></table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic</td><td>Formative
Essay (compulsory): 50%
Final written examination: 50%</td></tr>
</table>

interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

5. SUGGESTED BIBLIOGRAPHY

- Bolstad, P. (2016). GIS Fundamentals: A First Text on Geographic Information Systems, Fifth Edition. XanEdu Publishing.
- Smith, M. J., Goodchild, M. F., & Longley, P. A. (2018) Geospatial Analysis: A comprehensive guide to principles, techniques and software tools, 6th edition, The Winchelsea Press, Edinburgh
- Κάβουρας, Μ., Δάρρα, Α., Κονταξάκη, Σ., &Τομαή, Ε. (2016). Επιστήμη Γεωγραφικής Πληροφορίας - Αρχές και Τεχνολογίες [Προπτυχιακό εγχειρίδιο]. Κάλλιπος, Ανοικτές Ακαδημαϊκές Εκδόσεις. https://dx.doi.org/10.57713/kallipos-696
- Στεφανάκης, Ε., (2010). Βάσεις γεωγραφικών δεδομένων και συστήματα γεωγραφικών πληροφοριών. Εκδόσεις Παπασωτηρίου.
- Χατζόπουλος, Ι., & Χατζοπούλου, Ν. (2020). Γεωχωροπληροφορική τοπογραφία. Εκδόσεις Τζιόλα.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Essay (compulsory): 50% Final written examination: 50%
Implementation Instructions: (3)	The written exams will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(121) Please write YES or NO

(122) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(123) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

MOBILE APPLICATION PROGRAMMING

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ30	**SEMESTER**	8TH
COURSE TITLE	MOBILE APPLICATION PROGRAMMING		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After the successful completion of the course, participants will be able to:

- design and develop applications for mobile devices,
- use modern programming languages and development platforms for mobile devices,
- apply UI/UX techniques to enhance user experience in mobile applications,
- integrate multimedia and AR/VR technologies into interactive applications,
- utilise mobile device sensors,
- manage cultural content and develop applications that promote accessibility and audience interaction,
- evaluate current trends and technologies in mobile application development and their integration into cultural environments, recognising their impact on user experience.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information
- Decision making
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Respect for diversity and multiculturalism
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

1. **Introduction to Interactive Audiovisual Applications**
- Overview of the course, objectives, and learning outcomes.
- Design and development of applications.
- Workshop: Introduction to mobile application development environments.

2. **Fundamentals of Application Development**
- Programming languages and development tools for mobile applications.
- Workshop: Creating simple mobile applications.

3. **User Interface (UI) and User Experience (UX) Design**
- Principles of UI/UX design and design tools.
- Workshop: Designing UI/UX prototypes for mobile applications.

4. **Hybrid Application Development**
- Theoretical introduction: Platforms for hybrid application development.
- Workshop: Creating hybrid applications using relevant tools.

5. **Multimedia and Its Integration into Applications**
- Integration of images, video, and audio into mobile applications.
- Workshop: Applying multimedia to existing applications.

6. **Introduction to Augmented Reality (AR)**
- Theoretical introduction: Basic principles of AR and development tools.
- Workshop: Creating simple AR applications for mobile devices.

7. **Cultural Content Management**
- Content Management Systems (CMS) and databases.
- Workshop: Integrating CMS and databases into mobile applications.

8. **Principles of Human-Centred Design**
- Theory and practices of human-centred design.
- Workshop: Analysing and improving an existing user interface based on human-centred design principles.

9. **Trends in Mobile Application Development**
- Current trends and technologies in mobile application development.
- Workshop: Analysis and evaluation of contemporary applications.

10. **Creating Interactive Applications**
- Strategies for developing interactive and accessible applications.
- Workshop: Designing and developing interactive features in mobile applications.

11. **Prototyping and Testing**
- Prototyping and testing processes.
- Workshop: Creating prototypes and conducting usability testing.

12. **Integration of Augmented Reality (AR)**
- AR applications.
- Workshop: Developing a complete AR application.

13. **Presentation and Feedback**
- Final project presentations and feedback.
- Workshop: Presentation of completed applications, discussion, and evaluation.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• In-class lectures • Workshops • Active learning (hands-on learning) – experiential learning

<table>
<tr><td></td><td>• Collaborative (group-based) learning</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>Use of ICT in Teaching and Communication with Students
• PowerPoint presentations
• Use of digital tools and platforms
• Teaching materials, announcements, and communication via the eClass platform
• Students’ independent study of supporting material related to the course content
• Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td>
<table>
<tr><th>Activity</th><th>Workload/semester</th></tr>
<tr><td>Lectures</td><td>26</td></tr>
<tr><td>Laboratories</td><td>13</td></tr>
<tr><td>Final Project</td><td>30</td></tr>
<tr><td>Weekly Projects / Assessments</td><td>23</td></tr>
<tr><td>Independent Study</td><td>25</td></tr>
<tr><td>Final Examination</td><td>3</td></tr>
<tr><td>Total</td><td>120</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others

Please indicate all relevant information about the course assessment and how students are informed</td><td>Formative Assessment
• Weekly projects: 40%
• Coursework (compulsory): 30%
• Final examination: 30%</td></tr>
</table>

5. SUGGESTED BIBLIOGRAPHY

1. Eisenman, B.Learning React Native: Building Native Mobile Apps with JavaScript .O'Reilly Media; 1. Edition

2. Hocking, J. (2018).Unity in Action: Multiplatform Game Development in C#. Manning Publications, New York.

3. Phillips, B., Stewart, C. , Hardy, B. , Marsicano M. (2015). Android Programming: The Big Nerd Ranch Guide. Atlanta, GA.

4. Rogers, Y., Sharp, H., &Preece, J. (2011).Interaction Design: Beyond Human-Computer Interaction. Wiley, Chichester.

5. Shneiderman B., Plaisant C., Cohen M., Jacobs St., Elmqvist N. (2023). ΣχεδίασηΔιεπαφήςΧρήστη. ΕκδόσειςΤζιόλα, Θεσσαλονίκη.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	• Weekly projects: 40% • Coursework (compulsory): 30% • Final examination: 30%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(124) Please write YES or NO

(125) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(126) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

COMPUTER GRAPHICS

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΨΕΦ31	**SEMESTER**	8TH
COURSE TITLE	COMPUTER GRAPHICS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	4
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SKILL DEVELOPMENT
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Describe and explain the fundamental principles of Computer Graphics, including two-dimensional and three-dimensional representation, the transformation of geometric objects, and their rendering on screen.
- Analyse basic models of geometry, lighting, colour, and shading, and understand their role in the creation of digital visual representations.
- Apply basic computer graphics techniques to the creation and editing of two-dimensional and three-dimensional graphical objects, using appropriate digital tools and environments.
- Critically evaluate digital visual representations (2D/3D graphics, scenes, animations) in terms of aesthetic quality, functionality, and suitability for cultural applications.
- Relate computer graphics practices to applications in the Digital Humanities, such as the digital representation of cultural artefacts, virtual reconstruction, and digital cultural storytelling.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking

Working in an interdisciplinary environment *Promoting free, creative and inductive reasoning* *Production of new research ideas*
• Search, analysis and synthesis of data and information • Decision making • Autonomous work • Teamwork • Working in an interdisciplinary environment • Production of new research ideas • Project design and management

3. COURSE CONTENT

1	**Introduction to Computer Graphics** • Basic concepts and scope of computer graphics. Historical development and contemporary applications in the arts, culture, and digital media. • Definition, subject matter, and main categories of computer graphics (2D, 3D, animation, interactive graphics).
2	**Coordinate systems and geometric representations** • Two-dimensional and three-dimensional coordinate systems and transformations between them. • Representation of basic geometric elements (points, lines, polygons, solids).
3	**Geometric transformations** • Basic transformations (translation, scaling, rotation) and their mathematical description. • Combination of transformations and their application to the manipulation of digital objects.
4	**Projections and rendering of three-dimensional scenes** • Orthographic and perspective projections and their main differences. • Concepts of camera, field of view, and transformation from 3D to 2D space.
5	**Hierarchical modelling and scene structures** • Organisation of scenes using hierarchical object structures. • Parent–child relationships and reuse of geometric elements.
6	**Colour and visual representation** • Basic concepts of colour and colour models used in computer graphics. • The role of brightness, contrast, and colour in visual representation.
7	**Lighting and shading models** • Basic lighting models (ambient, diffuse, specular) and how they function. • Shading techniques and the effect of light on the perception of form.
8	**Textures and materials** • Concept and use of textures for surface representation. • Material properties and their application in realistic or non-realistic rendering.
9	**Introduction to animation** • Basic principles of motion and timing in digital graphics. • Creation of simple animated graphics and their use in digital applications.
10	**Interactive graphics and basic principles of interaction** • o The concept of interactivity in computer graphics. • o The relationship between user and graphical environment in educational and cultural applications.
11	**Digital tools and computer graphics environments** • o Overview of digital tools and graphics libraries at a conceptual level. • o Basic principles for using tools to create and edit graphics.
12	**Computer Graphics and the Digital Humanities** • Applications of computer graphics in digital cultural heritage and virtual representation. • Use of graphics in museum, educational, and cultural environments.

13	**Design and implementation of a digital graphics project** • Development of a complete computer graphics project (2D, 3D, or animation). • Presentation, documentation, and evaluation of the project based on predefined criteria.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face-to-face lectures. • In-class lectures • Workshops • Active (hands-on) and experiential learning • Collaborative (group-based) learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• Use of ICT in Teaching and Communication with students: • PowerPoint presentations • Utilization of multimodal-multimedia material in teaching • Communication and coordination of study and assignment preparation through e-class and social media platforms
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Assessment Weekly Projects: 40% Assignment (obligatory): 30% Final written examination: 30%

Activity	***Workload/semester***
Lectures	26
Workshops	13
Final Assignment	19
Weekly Projects / Tests	35
Study and Analysis of Bibliography	25
Examinations	2
Total	120

5. SUGGESTED BIBLIOGRAPHY

- Eberly, David H. 3D Game Engine Design: A Practical Approach to Real-Time Computer Graphics. 2nd ed., CRC Press, 2006.
- Foley, James D., et al. Computer Graphics: Principles and Practice. 3rd ed., Addison-Wesley, 2013.
- Hearn, Donald, and M. Pauline Baker. Computer Graphics with OpenGL. 4th ed., Pearson, 2010.
- Λιανός, Πέτρος. Τρισδιάστατα Γραφικά και Προγραμματισμός. Εκδόσεις Τζιόλα, 2017.
- Παπαδόπουλος, Κωνσταντίνος. Λογισμικό και Τεχνικές Γραφικών Υπολογιστών. Εκδόσεις Νήσος, 2020.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly Projects: 40% Assignment (obligatory): 30% Final written examination: 30%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(127) Please write YES or NO

(128) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(129) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

ELECTIVE COURSES
5TH SEMESTER

COURSE OUTLINE

TOPICS OF CHILD AND ADOLESCENT PSYCHOLOGICAL DEVELOPMENT

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / PHILOLOGY, HISTORY AND ANTHROPOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΠΔΕ1	**SEMESTER**	5TH
COURSE TITLE	TOPICS OF CHILD AND ADOLESCENT PSYCHOLOGICAL DEVELOPMENT		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Comprehend the “great” theories for human development.
- Become familiar with terms and concepts of developmental psychology.
- Understand processes and stages of cognitive development during childhood.
- Hold a scientific perspective about intelligence, its development and main issues regarding learning disabilities.
- Hold a concrete viewpoint about social relations and psycho emotional development during childhood.
- Understand the importance of moral development and be aware of moral development.
- Identify the significant changes in the physical, emotional and cognitive aspects of the self during adolescence.
- Understand the importance of identity formation during adolescence along with the psychological processes underlying this endeavor.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*

Working in an interdisciplinary environment *Promoting free, creative and inductive reasoning* *Production of new research ideas*
• Adaptation to new situations • Autonomous work • Working in an international environment • Equity and Inclusion • Critical thinking • Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Defining the scientific context: Basic terms and concepts of psychological science and developmental psychology.
2.The theories of S. Freud, E. Erikson και J. Piaget for the human development
3. The theories of I. Pavlov, B.F. Skinner, A. Bandura, L. Vigotsky.
4. Language and cognition during childhood.
5. Cognitive development, academic performance and the cognitive effects of school education.
6. Intelligence – Concept, definition, assessment.
7. Socialization processes and context of social behavior – Problems of childhood and adolescence.
8. Social relations and the importance of peer relationships.
9. Contemporary theories about adolescence.
10. Puberty – physical and psychological changes.
11. Cognition during adolescence – Changes in understanding the social world and moral development.
12. The completion of self and identity formation processes.
13. Psychological disorders during childhood and adolescence.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	Face to face
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	E class, e mail, live streaming
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	

Activity	*Workload/semester*
Classes attendance	39
Individual reading and preparation for the written exams	55
Essay writing (literature review)	51
Written examination	5
TOTAL	150

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report,*	Essay writing (literature review) – 30% Written examination at the end of the semester – 70%

Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

5. SUGGESTED BIBLIOGRAPHY

- Feldman, R.S. (2011). Εξελικτική ψυχολογία - Διά βίου ανάπτυξη - Ενιαίο (Επιμέλεια Η . Μπεζεβάγκης). Αθήνα: Gutenberg.
  Cole, M. &Cole, S. (2001). Η ανάπτυξη των παιδιών (επιμέλεια Π. Βορριά& Ζ. Παπαληγούρα) Τόμοι Β και Γ. Αθήνα - Τυπωθήτω, Δαρδανός.
- Γαλανάκη, Ε. (2003). Θέματα Αναπτυξιακής Ψυχολογίας: γνωστική, κοινωνική,
- συναισθηματική ανάπτυξη. Αθήνα: Ατραπός.
- Κουγιουμουτζάκης, Γ. (1995). Αναπτυξιακή Ψυχολογία: Παρελθόν, Παρόν και
- Μέλλον. Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης.
- Πετρογιάννης, Κ.Γ. (2003). *Η μελέτη της ανθρώπινης ανάπτυξης: οικοσυστημική*
- *προσέγγιση.* Αθήνα: Καστανιώτης.
- Πιαζέ, Ζ. (2007). *Η ψυχολογία της νοημοσύνης.* Αθήνα: Καστανιώτης.
- Ρεϊμόν-Ριβιέ, Μ. (2004). *Η κοινωνική ανάπτυξη του εφήβου.* Αθήνα: Καστανιώτης
- Salkind, N. (2006). *Εισαγωγή στις θεωρίες της ανθρώπινης ανάπτυξης* (Μτφ. Δ.
- Μαρκουλής*).* Αθήνα: Πατάκης.
- Vygotsky, L.S. (1997). *Νους στην Κοινωνία*. Αθήνα: Gutenberg.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	E. LAMPRIDIS
Contact details:	elamprid@he.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Essay writing (literature review) – 30% Written examination at the end of the semester – 70%
Implementation Instructions: (3)	Detailed information are uploads at the e class of the course. Students electronically submit their essays until the 10th week of classes. Written examination through e class platform. Students answer to 30 multiple choice questions randomly presented to each student. Time for answering each question two minutes. In order to pass the course students should answer correctly at least to 50%of the questions. The final mark is calculated taking into account students' performance in the essay as presented above.

(130) Please write YES or NO

(131) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(132) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

HISTORY DIDACTICS

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / PHILOLOGY, HISTORY AND ANTHROPOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΠΔΕ2	**SEMESTER**	5TH
COURSE TITLE	HISTORY DIDACTICS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND, SKILL DEVELOPMENT
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After completing the courses, students are expected to be able to:

- Understand the political and ideological conditions under which the subject of History was born in nation-states during the 19th century and the purposes it served.
- Comprehend the historical changes that occurred in the 20th century and the role that the subject is called to play in the contemporary multicultural societies of Greece and Europe.
- Analyze, interpret, and evaluate the subject of History in Greek schools with substantiated arguments.
- Deeply understand and use fundamental concepts of the scientific field and its methodology in their discourse.
- Know, understand, compare, and evaluate old and new History curricula regarding school education.
- Utilize the theoretical principles they have learned to design lesson plans.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis, and synthesis of data and information,
- Using the necessary technologies
- Decision-making
- Independent work
- Teamwork
- Work in an interdisciplinary environment
- Generation of new research ideas
- Respect for diversity and multiculturalism
- Demonstration of social, professional, and ethical responsibility and sensitivity to gender issues
- Practice of critical and self-critical thinking
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Introduction: Traditional and modern teaching models of History in education (comparative examination)
2. The subject of History in the modern world (discussion based on the questions: Why do we teach and learn history? What history do we teach? With what methods and why?)
3. Historical consciousness, historical thinking, historical skills (conceptual approach to the scientific terminology of the field and analysis of key contemporary theories)
4. The language and concepts of History (analysis of their polysemy and forms of pedagogical utilization)
5. The language and concepts of History – grouping students and exercises utilizing historical sources
6. Historical time (analysis of the multiplicity of historical time and forms of pedagogical utilization)
7. Historical time – grouping students and exercises (periodization, historical timelines, and techniques in the classroom)
8. History curricula (theoretical principles, typologies, and user guide)
9. Goal setting (classifications of teaching objectives and application exercises)
10. Historical sources, multimodality, and multiperspectivity (typologies and good examples of pedagogical utilization)
11. Lesson planning and creative applications
12. International organizations and historical education: UN, Council of Europe, EUROCLIO.
13. Review – discussion on the topics and requirements of the exams

4. LEARNING & TEACHING METHODS - EVALUATION

<table>
<tr><td>TEACHING METHOD
Face to face, Distance learning, etc.</td><td>• Lectures
• Active learning (hands-on learning) - Experiential learning
• Collaborative learning</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>Use of ICT in teaching and communication with students
• PPT presentations
• Teaching material, announcements and communication through the eClass platform
• Student study of supplementary material related to course content
• Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per</td><td>
<table>
<tr><th>Activity</th><th>Workload/semester</th></tr>
<tr><td>Lectures</td><td>39</td></tr>
<tr><td>Essay</td><td>21</td></tr>
<tr><td>Study and analysis of bibliography</td><td>60</td></tr>
<tr><td>Written examination</td><td>30</td></tr>
<tr><td>Total</td><td>150</td></tr>
</table>
</td></tr>
</table>

activity is indicated here, so that total workload per semester complies to ECTS standards.	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Mid-term written examination: 20% Essay (compulsory): 30% Final written examination: 50%

5. SUGGESTED BIBLIOGRAPHY

Γ. Κόκκινος-Δ. Μαυροσκούφης (επιμ.), *Το Τραύμα, τα Συγκρουσιακά Θέματα και οι Ερμηνευτικές Διαμάχες στην Ιστορική Εκπαίδευση*, Ρόδον, Αθήνα 2015

Α. Παληκίδης (επιμ.)**,** *Κριτικές προσεγγίσεις του ναζιστικού φαινομένου*, Επίκεντρο, Θεσσαλονίκη 2013

Barton Keith C., Levstik Linda S., *Διδάσκοντας ιστορία για το συλλογικό αγαθό*, Μεταίχμιο, Αθήνα 2008.

E-class notes and selected bibliography posted on e-class

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	A. PALIKIDIS
Contact details:	apalikid@he.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Mid-term written examination: 20% Essay (compulsory): 20% Final written examination: 60%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(133) Please write YES or NO

(134) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(135) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

TEACHING AND EMOTIONAL INTELLIGENCE

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / PHILOLOGY, HISTORY AND ANTHROPOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΠΔΕ3	**SEMESTER**	5TH
COURSE TITLE	TEACHING AND EMOTIONAL INTELLIGENCE		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Design and implement teaching that facilitates the development of emotional intelligence in their future students.
- Recognize emotional intelligence as social intelligence.
- Understand the stages of social awareness development as well as the basic categories of emotional intelligence development.
- Plan interventions to be conducted within the framework of classroom teaching.
- Design interventions aimed at developing self-awareness, emotional management, empathy, communication, collaboration, and conflict resolution skills.
- Recognize diversity.
- Act as educators to help their students accept themselves and those around them who are different.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

Production of new research ideas

- Research, analysis, and synthesis of data and information, utilizing the necessary technologies
- Independent work
- Teamwork
- Respect for diversity and multiculturalism
- Demonstration of social, professional, and ethical responsibility and sensitivity to gender issues
- Promotion of free, creative, and inductive thinking

3. COURSE CONTENT

- Experiential Learning. Principles of experiential learning. Principles for designing experiential learning activities: the process, forms, the role of the educator. Experiential learning and teaching practice.
- Individual differences among students. Getting to know our students. Development of the students' learning profile.
- Creation and construction of an individual student profile and the profile of the class.
- The many facets of Intelligence. The theory of multiple intelligences. Triarchic intelligence. Emotional intelligence.
- Emotional Intelligence. Stages of developing social awareness. Development of self-awareness, emotion management, empathy, and communication skills. Educational programs for social-emotional learning.
- Recognizing similarities and differences. Recognizing diversity. Acceptance of diversity. Accepting myself. Being accepted by others. What can I do to help my students accept themselves and those around them who are different? Awareness program on diversity.
- Interdisciplinary approach to diversity.
- Mechanisms of constructing stereotypes and prejudices. Practices to overturn stereotypes and prejudices and teaching interventions.
- Learning to put myself in another's shoes. Expression of empathetic behavior. Basic principles for developing empathy. What can I do as an educator to facilitate the development of empathy in my students?
- Learning to support my opinion: Dialogue with respect. What can I do as an educator to help children speak respectfully and advocate for their own rights as well as the rights of others?
- Education on citizens' rights and responsibilities. I am an active and aware citizen, taking constructive action. The methodology of constructive action.
- Presentation of projects.
- Reflection.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Lectures • Active learning (hands-on learning) - Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.*	

Activity	***Workload/semester***
Lectures	39
Essay	60
Essay presentation	10
Study and analysis of bibliography	37
Written examination	4

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.	Total: 150
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Mid-term written examination: 15% Essay (compulsory): 30% Final written examination: 55%

5. SUGGESTED BIBLIOGRAPHY

Greek-language bibliography*:*

- Κορρέ, Ει.(2021). Διαφοροποιημένη Παιδαγωγική. Από τη Θεωρία έως τη Διδασκαλία. Αθήνα: Άλκιμο.
- Τριλίβα, Σ., Αναγνωστοπούλου Τ., Χατζηνικολάου, Σ. (2008).Ούτε Καλύτερος, Ούτε Χειρότερος...Απλά Διαφορετικός: Ασκήσεις Ευαισθητοποίησης στη Διαφορετικότητα για Παιδιά Δημοτικού και Γυμνασίου. Αθήνα :Gutenberg.

Foreign-language bibliography:

- Boud, D., Cohen R., & Walker, D. (Åds) (1993). Using experience for learning.
- Cash, K. (1983). Designing and using simulation for training. Technical Note, 20, Massachusetts Univ.: Amherst.
- Salovey, P. & Mayer, J.D. (1990). Emotional intelligence. Imagination, Cognition and Personality 9(3): 185-211.
- Sarasin, L.C. (1999). Learning Style Perspectives: Impact in the Classroom. Madison: Atwood.
- Thorndike, E.L. (1920). Intelligence and its uses. Harper's Magazine 140: 227-235.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	I. KORRE
Contact details:	ikorre@helit.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Mid-term written examination: 15% Essay (compulsory): 30% Final written examination: 55%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(136) Please write YES or NO

(137) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(138) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

GRAPHIC DESIGN AND MOTION GRAPHICS

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΨΕΦ1	**SEMESTER**	5TH
COURSE TITLE	GRAPHIC DESIGN AND MOTION GRAPHICS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After successfully completing the course, participants will be able to:

- Understand and apply fundamental principles of graphic design, such as composition, color, and typography.
- Contribute to the creation of motion graphics and 2D animations using modern digital tools.
- Design for digital media with a focus on creativity and innovation.
- Recognize the relationship between static and moving content, as well as the role of motion in creating narrative and interactive experiences.
- Apply practical knowledge to projects such as promotional videos, exhibition materials, digital presentations, and websites.
- Collaborate effectively on group projects, combining diverse visual and creative styles.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information,

- ICT Use
- Adaptation to new situations
- Critical thinking
- Promoting free, creative and inductive reasoning
- Working in an interdisciplinary environment
- Project design and management

3. COURSE CONTENT

The course covers fundamental and advanced principles of 2D graphic design and motion graphics with applications in the arts and culture. Students will learn the foundational principles of visual design, such as composition, color, and typography, and will apply them in digital cultural environments. The course then introduces animation techniques for creating motion graphics, emphasizing practical use of graphic design and animation tools. Additionally, students will have the opportunity to apply their knowledge to real-world projects, such as promotional videos and interactive media. The course culminates in the development of combined static and moving graphics to enhance visual communication and storytelling.

1	**Introduction to Graphic Design and Motion Graphics**:	• Historical evolution of graphic design and motion images. • Overview of key principles in visual communication.
2	**Basic Principles of Graphic Design**:	• Composition, balance, rhythm, color, and typography. • Analysis of successful examples of static and motion graphics.
3	**Digital Design Tools**:	• Introduction to graphic design and animation software (e.g., Adobe Illustrator, Photoshop, and 2D animation programs). • Familiarization with tools and their capabilities.
4	**Motion Graphics and Visual Communication**:	• The role of motion in visual storytelling. • Combining graphic elements with motion.
5	**Creation of Static Visual Elements**:	• Designing logos, icons, and promotional materials. • Use of color, typography, and visual hierarchies.
6	**Introduction to Motion**:	• Basic animation principles: timing, motion curves, keyframes. • Creating simple movements in 2D animation software.
7	**Design of Moving Visual Elements**:	• Designing motion graphics for presentations and advertisements. • Applying motion to typography and images.
8	**Storyboarding Techniques for Motion Graphics**:	• Creating storyboards for narrative development. • Content flow and organization.
9	**Creation of Promotional and Communication Materials for Cultural Settings**:	• Designing and creating promotional videos with motion graphics for cultural and educational organizations. • Practical application of fundamental principles.
10	**Using Motion for Narrative Interaction**:	• Creating interactive animations for websites and applications. • Using movements to enhance user experience.
11	**Combining Static and Motion Graphics in Projects**:	• Creating projects that integrate static and moving elements. • Presentation of visual identities and combining

		static and motion media.
12	**Practice in Interactive Systems and Digital Presentations**:	• Designing and creating interactive graphics and presentations. • Use of software and tools for digital projects.
13	**Evaluation and Presentation of Final Projects**:	• Final presentation and evaluation of student projects. • Analysis and feedback on creative approaches and techniques used.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Classroom lectures • Workshops • Active learning (hands-on learning) – Experiential learning • Collaborative group learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	***Activity*** / ***Workload/semester*** Lectures: 26 Workshops: 13 Essay: 30 Weekly projects: 38 Independent study: 40 Written examination: 3 Total: 150
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Weekly projects: 40% Essay (compulsory): 30% Final written examination: 30%

5. SUGGESTED BIBLIOGRAPHY

Fridsma, L., & Gyncild, B. (2016). *Adobe After Effects CC classroom in a book*. Adobe Press.

Gomez, M. (2019). *Graphic design: The new basics (2nd ed.)*. Princeton Architectural Press.

Lauer, D. A., & Pentak, S. (2011). *Design Basics (8th ed.)*. Cengage Learning.

Lieser, W. (2010). *Digital Art (World of Art)*. Thames & Hudson.

McCarthy, L., Reas, C., & Fry, B. (2015). *Getting started with p5.js: Making interactive graphics in JavaScript and Processing*. Maker Media.

Murphy, B. (2016). *Motion Graphics: Principles and Practices from the Ground Up*. Fairchild Books.
Vickery, R., & Burrill, S. (2019). *Cultural Heritage and New Media Design*. Routledge.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly projects: 40% Essay (compulsory): 30% Final written examination: 30%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(139) Please write YES or NO

(140) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(141) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

DIGITAL EXHIBITION DESIGN

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΨΕΦ2	**SEMESTER**	5TH
COURSE TITLE	DIGITAL EXHIBITION DESIGN		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After the completion of the course, students will be able to:

- understand the fundamental concepts of designing physical and digital exhibitions,
- comprehend the core principles of exhibition curation and storytelling,
- design user-friendly interactive experiences, with an emphasis on accessibility and audience engagement,
- use technologies such as Augmented Reality (AR), Virtual Reality (VR), and various exhibition design software tools,
- develop and manage digital exhibition environments, integrating multimedia and interactive elements,
- collaborate effectively in teams to create projects.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information
- Decision making
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Respect for diversity and multiculturalism
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

1. **Introduction**

- Getting to know the students and presentation of the course content, objectives, learning outcomes, and requirements
- Overview of exhibition design principles in physical and digital spaces
- Introduction to user experience (UX) and user interface (UI) design
- Traditional and digital exhibitions: similarities and differences
- Introduction to key digital tools used in exhibition design (e.g. AR, VR, digital interfaces)
- Workshop: Presentation and analysis of successful digital exhibitions (case studies)
- Hands-on: Introduction to basic software (e.g. Sketch, Figma, Adobe XD)

2. **Narrative and Structure in Digital Exhibitions**

- The role of storytelling in exhibitions
- What makes a narrative engaging?
- Digital storytelling techniques: non-linear narratives, multimedia integration
- Workshop: Group analysis of well-known exhibitions focusing on narrative flow
- Hands-on: Creating a simple digital story using multimedia

3. **Introduction to AR and VR Technologies for Exhibitions**

- Augmented Reality (AR) and Virtual Reality (VR) in cultural spaces
- Technical requirements for creating AR/VR content
- Overview of existing AR/VR applications in museums and exhibition spaces
- Workshop: Experimentation with basic AR/VR tools (e.g. Unity, Adobe Aero)
- Hands-on: Developing AR/VR content ideas for exhibitions

4. **User Interaction in Digital Spaces**

- Introduction to interactive design in physical and digital exhibitions
- How to create user-friendly interactive experiences
- Tools for creating interactive elements (e.g. interactive maps, touchscreens)
- Hands-on: Developing an interactive feature for an exhibition using digital tools (e.g. InVision, Figma)

5. **Curation and Content Management in Digital Exhibitions**

- Principles of curating digital exhibitions – selection and organisation of content
- Digital Asset Management systems (DAMs) for managing large media collections
- Workshop: Creating a small content collection for a digital exhibition
- Hands-on: Developing a concept plan for a digital exhibition

6. **Multimedia Integration**

- How multimedia (video, audio, 3D models) enhances the exhibition experience
- Tools and techniques for integrating video, audio, and 3D models into exhibition design
- Workshop: Importing multimedia files into exhibition design software
- Hands-on: Creating a simple exhibition section with multimedia elements

7. **Spatial Design for Virtual and Digital Environments**

- Introduction to spatial design in virtual environments (VR)
- Designing layout and flow in a virtual exhibition
- Visitor movement and navigation in digital spaces
- Workshop: Using 3D software (e.g. Blender, SketchUp) to create a basic exhibition space
- Hands-on: Creating a simple 3D model of an exhibition space with navigation paths

8. **User Testing and Prototyping for Digital Exhibitions**

- The importance of user testing in exhibition design
- Creating and testing prototypes for digital exhibitions

- Workshop: Developing a simple prototype of a digital exhibition using Figma or Adobe XD
- Hands-on: Conducting user testing in small groups and collecting feedback

9. **Accessibility and Inclusion in Digital Exhibitions**

- Principles of accessibility in digital exhibition design
- Designing for diverse audiences
- Workshop: Evaluating an existing exhibition for accessibility issues
- Hands-on: Applying accessibility improvements to existing exhibition designs

10. **Creation and Production of AR/VR Content (Part A)**

- In-depth analysis of AR/VR content creation workflows (Unity, Blender, Unreal Engine)
- Importing and integrating 3D objects, video, and audio into AR/VR environments

11. **Creation and Production of AR/VR Content (Part B)**

- Workshop: Creating a simple AR experience using Adobe Aero or Unity
- Hands-on: Developing a group VR project for the final assignment

12. **Digital Exhibition Project Management**

- Overview of project management techniques in digital exhibition design
- Project management tools (Trello, Asana, Monday)
- Phases of digital exhibition design
- Workshop: Group work on the final project
- Hands-on: Creating a timeline and task list for a digital exhibition project

13. **Final Project Presentation and Feedback**

- Presentation of final digital exhibition projects by students
- Course review and clarification of questions
- Student feedback on the course

4. LEARNING & TEACHING METHODS - EVALUATION

<table>
<tr><td>TEACHING METHOD
Face to face, Distance learning, etc.</td><td>• Face-to-face lectures.
• Seminars, study and analysis of literature with reference to the course units.
• Differentiated instruction.
• Inquiry-based teaching.
• Collaborative teaching.</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>• Use of ICT in Teaching and Communication with students:
• PowerPoint presentations
• Videos
• Utilization of multimodal-multimedia material in teaching
• Communication and coordination of study and assignment preparation through e-class and social media platforms</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td>
<table>
<tr><th>Activity</th><th>Workload/semester</th></tr>
<tr><td>Lectures</td><td>26</td></tr>
<tr><td>Laboratories</td><td>13</td></tr>
<tr><td>Final Project</td><td>30</td></tr>
<tr><td>Weekly Projects / Assessments</td><td>38</td></tr>
<tr><td>Independent Study</td><td>40</td></tr>
<tr><td>Final Examination</td><td>3</td></tr>
<tr><td>Total</td><td>150</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process</td><td>Formative Assessment
• Weekly projects: 40%
• Coursework (compulsory): 30%</td></tr>
</table>

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	• Final examination: 30%

5. SUGGESTED BIBLIOGRAPHY

McDonald, S., Pappas, A. (επιμ.) 2013. *ΜουσείοκαιΜουσειακέςΣπουδές. ΈναςπλήρηςΟδηγός*. Αθήνα: Πολιτιστικόίδρυμα Ομίλου Πειραιώς

Dernie, D. 2006. *ExhibitionDesign*. W.W. Norton&Company

Din, H., Hecht, Ph. (eds.) 2007. *The Digital Museum: A Think Guide*. American Association of Museums

Rhiannon, M., Robinson, A., Coffield, E. 2018. *Museum and Gallery Studies*. London: Routledge

Rush, M. 2005. *New Media in Art*. London: Thames & Hudson

Warwick, Cl., Terras, M., Nyhan, J. 2012. *DigitalHumanitiesinPractice*. London: Routledge

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	• Weekly projects: 40% • Coursework (compulsory): 30% • Final examination: 30%
Implementation Instructions: (3)	The submission of assignments and the written exam will take place via eClass on a predetermined date.

(142) Please write YES or NO

(143) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(144) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

6TH SEMESTER

COURSE OUTLINE

HISTORY OF MODERN GREEK ART: TOPICS ON THEORY AND TEACHING METHODOLOGY

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / PHILOLOGY, HISTORY AND ANTHROPOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΠΔΕ4	**SEMESTER**	6TH
COURSE TITLE	HISTORY OF MODERN GREEK ART: TOPICS ON THEORY AND TEACHING METHODOLOGY		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND SKILL DEVELOPMENT
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	NO
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

In particular, after completing the courses, students are expected to be able to:

- Know and distinguish the main movements of modern Greek art.
- Interpret the birth and evolution of artistic movements in historical terms (ideology, politics, mentalities, religion, philosophy, culture).
- Develop visual literacy skills.
- Understand deeply and correctly handle the scientific terminology in their descriptive, analytical, and interpretive discourse.
- Discover the survivals of modern Greek art in contemporary Greek society, as well as their uses in the public sphere.
- Recognize the significance and know the ways to utilize the history of modern Greek art in school historical education.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis, and synthesis of data and information,
- Autonomous work
- Using the necessary technologies
- Independent work
- Teamwork
- Work in an interdisciplinary environment
- Respect for diversity and multiculturalism
- Demonstration of social, professional, and ethical responsibility and sensitivity to gender issues
- Practice of critical and self-critical thinking
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Concepts and definition of modern Greek art. Historical context and periodization.
2. Relationship between post-Byzantine and European art. Forms of representational depiction.
3. The Greek landscape and the revolution of 1821: through the eyes of foreign painters.
4. The first Greek historical painters and philhellenic art.
5. Greek painters of the Munich School I.
6. Greek painters of the Munich School II.
7. Greek Orientalist painters.
8. Seascapes and landscapes.
9. Greek modernism and the search for Greek identity: historical and ideological context.
10. Parthenis, Maleas, Egonopoulos, Theofilos, Kontoglou.
11. The History of Art in the History lesson (teaching methodology for approaching the artistic image).
12. The History of Art in the History lesson (examples of good practices).
13. The History of Art in the History lesson (grouping students and creating worksheets). Overview and reflection.

14. LEARNING & TEACHING METHODS - EVALUATION

<table>
<tr><td>TEACHING METHOD
Face to face, Distance learning, etc.</td><td>• Lectures
• Active learning (hands-on learning) - Experiential learning
• Collaborative learning</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>Use of ICT in teaching and communication with students
• PPT presentations
• Teaching material, announcements and communication through the eClass platform
• Student study of supplementary material related to course content
• Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>39</td></tr><tr><td>Essay</td><td>21</td></tr><tr><td>Study and analysis of bibliography</td><td>60</td></tr><tr><td>Written examination</td><td>30</td></tr><tr><td>Total</td><td>150</td></tr></table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development</td><td>Formative

Mid-term written examination: 15%
Essay (compulsory): 15%
Final oral examination: 70%</td></tr>
</table>

Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

15. SUGGESTED BIBLIOGRAPHY

Λυδάκης, Σ., *Ιστορία της Νεοελληνικής Ζωγραφικής,* Μέλισσα, Αθήνα 1985.

Λαμπράκη-Πλάκα, Μ., *Εθνική Πινακοθήκη – Μουσείο Αλέξανδρου Σούτσου. Τέσσερις αιώνες ελληνικής ζωγραφικής,* Αθήνα 2000.Δρούλια, Λ., «Τα σύμβολα του νέου ελληνικού κράτους», *Τα Ιστορικά*, τόμ. 12, τεύχ. 23 (1995), 335-350.

Ματθιόπουλος, Ευ. (επιμ.), *Λεξικό Ελλήνων καλλιτεχνών. Ζωγράφοι-γλύπτες-χαράκτες, 16ος-20ος αιώνας*, Μέλισσα, Αθήνα 1997.

Μυκονιάτης, Η., «Οι ανδριάντες του Ρήγα και του Γρηγορίου Ε' στα προπύλαια του Πανεπιστημίου της Αθήνας και το πρώτο κοινό τους, *Ελληνικά*, τομ. 35 (1984), 355-370.

Παληκίδης, Ά., *Τέχνη και ιστορική συνείδηση στην Ελλάδα του 19ου αιώνα. Εικόνα, ιστορία, εκπαίδευση,* Gutenberg, Αθήνα 2021.

E-class notes and selected bibliography posted on e-class

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	A. PALIKIDIS
Contact details:	apalikid@he.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Mid-term written examination: 20% Essay (compulsory): 30% Final written examination: 50%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(145) Please write YES or NO

(146) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(147) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

LANGUAGE TEACHING AND MULTILITERACIES

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / PHILOLOGY, HISTORY AND ANTHROPOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΠΔΕ5	**SEMESTER**	6TH
COURSE TITLE	LANGUAGE TEACHING AND MULTILITERACIES		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SKILLS DEVELOPMENT
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Demonstrate knowledge of the relationship between linguistics and language teaching in a variety of linguistically and culturally heterogeneous educational contexts.
- Develop awareness of methodological approaches to teaching Greek as a first (L1) and as an additional language (L2), relate them to theories of language acquisition/learning and critically evaluate the advantages and disadvantages of each.
- Analyse language data of learners using concepts and models.
- Design tasks and learning scenarios for language teaching aiming at multiliteracies.
- Compose their own multimodal materials as future teachers.
- Understand the role of digital tools in language teaching and become familiar with their use.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information, ICT Use
- Autonomous work

- Teamwork
- Equity and Inclusion
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promoting free, creative and inductive reasoning
- Working in an interdisciplinary environment
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Critical thinking

3. COURSE CONTENT

1	Introduction	▪ Object and principles of applied and educational linguistics ▪ Basic concepts: first, second, additional, foreign language, heritage language, acquisition, learning
2	Language learning and teaching in modern educational contexts	▪ Case studies: profiles, repertoires and practices of learners in Greek as L1 and L2 ▪ Parameters influencing language learning/teaching in school and adult education
3	Language teaching approaches and methods I	▪ Structural Approach ▪ Contrastive Analysis ▪ Physical Approach ▪ Communicative and Task-based Approach
4	Language teaching approaches and methods II	▪ Strategy-based Instruction ▪ Systemic Functional Approach • Multiliteracies
5	Language teaching approaches and methods III	▪ CLIL, pluriliteracies across subjects ▪ Digital technologies and language teaching ▪ Translanguaging ▪ Language teaching and the post-method era
6	Analysis of students' discourse I	▪ Cooperative tasks within classroom: Analysis of students' discourse (L1)
7	Analysis of students' discourse II	▪ Cooperative tasks within classroom: Analysis of students' discourse (L2)
8	Language Assessment	▪ Language assessment types and tools ▪ Language tests ▪ Alternative assessment
9	Language teaching and educational policy	▪ L1 Curricula ▪ L2 Curricula
10	Language teaching and learning material	▪ School textbooks and OER • Electronic/digital dictionaries and corpora
11	Designing language tasks for teaching Greek as L1 and L2	▪ Cooperative tasks within classroom
12	Designing language tasks for the mainstream classroom	▪ Cooperative tasks within classroom
13	Project presentations and recap	

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Lectures • Active learning (hands-on learning) - Experiential learning • Collaborative learning • Flipped Classroom
USE OF INFORMATION &	• Use of ICT in teaching and communication with

<table>
<tr><td>COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>students
• PPT presentations
• Teaching material, announcements and communication through the eClass platform
• Student study of supplementary material related to course content
• Collaborative educational environments
• Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>39</td></tr><tr><td>Study and analysis of bibliography</td><td>40</td></tr><tr><td>Collaborative tasks within classroom</td><td>37</td></tr><tr><td>Project</td><td>30</td></tr><tr><td>Written examination</td><td>4</td></tr><tr><td>Total</td><td>150</td></tr></table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others

Please indicate all relevant information about the course assessment and how students are informed</td><td>Formative

Cooperative tasks (compulsory): 30%
Project (compulsory): 50%
Peer-assessment: 20%</td></tr>
</table>

5. SUGGESTED BIBLIOGRAPHY

- Γαβριηλίδου, Ζ., Μητσιάκη, Μ., & Φλιάτουρας, Α. 2021. *100 βασικές ενότητες για τη γλωσσολογία*. Αθήνα: Gutenberg.
- Kalantzis, M., Cope. B., Αρβανίτη Ε., Στελλάκης, Ν. (2019). *Γραμματισμοί*. Εκδόσεις κριτική.
- Χατζηδάκη, Α. (2020). *Διδάσκοντας δίγλωσσα παιδιά: Θεωρητικά ζητήματα και διδακτικές προσεγγίσεις*. Εκδόσεις Πεδίο.
- Μητσιάκη, Μ. (2020). *Αναλυτικό Πρόγραμμα Σπουδών για την ελληνική ως δεύτερη γλώσσα* (Προδημοτική, Δημοτική, Μέση Γενική, Μέση Τεχνική και Επαγγελματική Εκπαίδευση και Κατάρτιση της Κύπρου). ΥΠΠΑΝ, Λευκωσία, Κύπρος. (ηλεκτρονική έκδοση)
- Gavriilidou Z., Mitsiaki M. (2022). *Curriculum for teaching Greek as a Heritage Language. A framework for teachers,* Κομοτηνή, 2KProject.
- Κουτσογιάννης, Δ. (2017). *Γλωσσική διδασκαλία χθες, σήμερα και αύριο: Μια πολιτική προσέγγιση*. Ινστιτούτο Νεοελληνικών Σπουδών, Ίδρυμα Μανόλη Τριανταφυλλίδη.
- Μιχάλης, Θ. *Γλωσσική Διδασκαλία και Πρακτικές Γραμματισμού στη Δευτεροβάθμια Εκπαίδευση*. Gutenberg.
- Αρβανίτης, Π., & Κρυστάλλη, Π. (2023). *Ψηφιακές τεχνολογίες και διδασκαλία της ξένης γλώσσας* [Προπτυχιακό εγχειρίδιο]. Κάλλιπος, Ανοικτές Ακαδημαϊκές Εκδόσεις.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	M. MITSIAKI
Contact details:	mmitsiaki@helit.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Cooperative tasks (compulsory): 30% Project: 50% Peer-assessment: 20%
Implementation Instructions: (3)	All types of assessment will be conducted via the eClass platform.

(148) Please write YES or NO

(149) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(150) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

ENTREPRENEURSHIP, MARKETING, ADVERTISING, AND CULTURAL TOURISM

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΨΕΦ3	**SEMESTER**	6TH
COURSE TITLE	ENTREPRENEURSHIP, MARKETING, ADVERTISING, AND CULTURAL TOURISM		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Understand the definition of innovation and its significance for cultural tourism.
- Recognize the basic principles of entrepreneurship and their application in the field of cultural tourism.
- Develop skills for identifying business opportunities through market understanding.
- Understand the adaptive strategies that cultural enterprises use to meet market demands.
- Comprehend the steps involved in creating a viable business plan for cultural tourism.
- Familiarize themselves with available funding sources and capital opportunities for developing cultural enterprises.
- Apply basic principles of digital marketing and advertising to promote cultural products and experiences.
- Effectively utilize social media to enhance the accessibility and marketability of cultural and tourism products.
- Develop innovative business strategies for cultural tourism, with an emphasis on digital applications.
- Create marketing plans for cultural organizations and businesses based on digital technologies.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*

Autonomous work *Teamwork* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Demonstration of social, professional and moral responsibility and sensitivity to gender issues* *Critical thinking* *Promoting free, creative and inductive reasoning*

- Search, analysis and synthesis of data and information,
- Adaptation to new situations
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Production of new research ideas
- Project design and management
- Critical thinking and self-reflection
- Equity and Inclusion
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

Week 1: Introduction to Innovation and Entrepreneurship in Cultural Tourism
Definition of innovation and its significance for business development in cultural tourism.
Basic principles of entrepreneurship in the cultural sector.
Methodologies for identifying business opportunities.
Week 2: Innovation in Cultural Tourism
Analysis and presentation of successful cultural enterprises developed through innovative approaches.
Adaptation of cultural enterprises to current market trends and demands.
Week 3: Development and Competitiveness Strategies
Development of innovative business strategies in cultural tourism.
Product and service differentiation to gain a competitive advantage.
Week 4: Leveraging Technology in Cultural Tourism
The importance of technology in enhancing entrepreneurship.
Technological tools and platforms for optimizing cultural experiences.
Week 5: Creating a Sustainable Business Model
Steps for creating a sustainable business plan in cultural tourism.
Presentation of successful examples of business models.
Funding sources and capital for developing sustainable cultural enterprises.
Week 6: Digital Marketing for the Cultural Sector
Fundamental principles of digital marketing.
Targeting strategies for the cultural tourism audience.
Week 7: Development of Cultural Products and Services
Designing cultural products that meet market trends.
Social and economic value of cultural tourism services.
Week 8: Online Advertising and Digital Visibility
Online advertising strategies (PPC, display ads).
SEO optimization for cultural organizations.
Week 9: Social Media Strategy
Social media management tools.
Targeting and audience development on social media.
Week 10: Branding and Storytelling Strategies
Creating and managing cultural brands.
Storytelling to enhance the cultural experience.
Week 11: Use of Data and Analytics in Digital Advertising
Introduction to Google Analytics, insights from social media.
Analyzing ad performance and optimizing strategies.
Week 12: Digital User Experience and Cultural Advantages
Creating cultural experiences through digital platforms.
Booking platforms and applications that facilitate tourism.

Week 13: Student Project Presentations and Conclusions
Presentations of business plans and marketing strategies by students.
Review of learning objectives and course evaluation.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Lectures and Seminars: Presentation of theory and practical examples using audiovisual materials. • Workshops: Practical application of marketing strategies and social media management through group work. • Guest Speakers: Entrepreneurs and experts in the fields of culture and tourism.
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students • PPT presentations • Use of digital tools and platforms • Teaching material, announcements and communication through the eClass platform • Student study of supplementary material related to course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report,Clinical examination of a patient,Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Group Projects: Collaboration to create a business plan or marketing campaign. Independent Case Studies: Analysis of successful and unsuccessful strategies in cultural tourism. Group Project (40%): Development of a business plan or digital marketing campaign for a cultural and/or tourism organization. Individual Assignment (30%): Analytical case study of an existing business or campaign. Final Written Examination (30%): Theoretical questions covering the course material.

Activity	***Workload/semester***
Lectures	39
Final Project	30
Weekly Projects / Tests	38
Bibliographic research & analysis	40
Written examination	3
Total	150

5. SUGGESTED BIBLIOGRAPHY

A. Arthur A., Jr. Thompson, John E. Gamble, Margaret A. Peteraf. (2024). Στρατηγικό μάνατζμεντ. Ανάλυση ανταγωνισμού και αποτίμηση εταιρικών στρατηγικών. Θεωρία και μελέτες περίπτωσης. ΕΚΔΟΣΕΙΣ Α.ΠΑΠΑΖΗΣΗΣ. Έκδοση: 1η έκδ./2024. Επιστημονική Επιμέλεια: Δημητρίου Δ., Σαρτζετάκη Μ. ISBN: 9789600243710

B. Ferrell O.C., Hirt G.A., Ferrell L. (2024). Μάνατζμεντ Επιχειρήσεων: Πλαίσιο, Αρχές και Τεχνικές, BrokenHiil, Επιστημονική Επιμέλεια: Δημήτριος Ι. Δημητρίου, Αρίστη Γ. Καραγκούνη. ISBN: 9789925576371

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	K. RIGOPOULOS
Contact details:	krigopou@econ.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	**Group Project (40%):** Development of a business plan or digital marketing campaign for a cultural and/or tourism organization. **Individual Assignment (30%):** Analytical case study of an existing business or campaign. **Final Written Examination (30%):** Theoretical questions covering the course material.
Implementation Instructions: (3)	Written assessments and the final exam will be conducted via eClass on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(151) Please write YES or NO

(152) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(153) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensuredand any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

COMPILERS

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΨΕΦ4	**SEMESTER**	6th
COURSE TITLE	COMPILERS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

• describe and analyse the structure, phases, and operation of a compiler, as well as the role of each stage in the compilation process.

• use concepts from formal languages, grammars, and automata for the understanding and design of compilation mechanisms.

• design and implement lexical and syntactic analysers for simple programming languages using tools such as flex and bison.

• develop and manage symbol tables, applying rules of scope, typing, and semantic analysis.

• generate intermediate code and apply syntax-directed translation.

• apply basic optimisation techniques and generate final code for a specific execution environment.

• analyse and document the design and operation of a simplified compiler by combining theoretical knowledge with practical implementation.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*

Working in an international environment *Working in an interdisciplinary environment* *Production of new research ideas*	*Critical thinking* *Promoting free, creative and inductive reasoning*

- Search, analysis and synthesis of data and information, ICT Use
- Production of new research ideas
- Project design and management
- Autonomous work
- Adaptation to new situations
- Critical thinking
- Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

1	**Introduction to Compilers** • **Theory:** Concept and role of compilers and related tools. Related tools. Compilation phases and the basic organisation of a compiler. • **Lab:** Introduction to the development environment. Presentation of the programming language used in the course project and the overall architecture of the compiler.
2	**Formal Languages and Grammars** • **Theory:** Interactive design theories; user experience (UX/UI); examples from cultural events and exhibitions. • **Lab:** Design of a basic interactive experience using Unity or Unreal Engine.
3	**Automata and State Machines** • **Theory:** Finite automata and state machines. Relationship between automata and lexical analysis. • **Lab:** Design of automata for recognising lexical tokens.
4	**Lexical Analysis** • **Theory:** Tokens and token categories. Principles of lexical analyser design. • **Lab:** Manual implementation of a simple lexical analyser.
5	**Automatic Lexical Analysis with flex** • **Theory:** Automatic generation of a lexical analyser. Structure and operation of the flex tool. • **Lab:** Implementation of a lexical analyser using flex for the course language.
6	**Syntax Analysis I – Top-Down Parsing** • **Theory:** Top-down parsing. LL grammars. Syntax trees. • **Lab:** Manual parsing and construction of a syntax tree.
7	• **Syntax Analysis II – Bottom-Up Parsing and bison** • **Theory:** Bottom-up parsing. LR grammars. • **Lab:** Implementation of a parser using bison.
8	**Symbol Tables** • **Theory:** Structure and role of symbol tables. Management of identifiers, types, and scope. • **Lab:** Implementation of a symbol table and integration with the parser.
9	**Semantic Analysis** • **Theory:** Type systems. Semantic checking and error detection. • **Lab:** Implementation of basic type checking and semantic rules.
10	**Intermediate Code Generation** • **Theory:** Forms of intermediate code. Syntax-directed translation. • **Lab:** Generation of intermediate code from abstract syntax trees.
11	**Optimisation and Final Code Generation** • **Theory:** Basic optimisation techniques. Instruction selection and generation of efficient code. • **Lab:** Generation of final code and application of simple optimisations.
12	**Compilation of Object-Oriented Languages and Integration** • **Theory:** Basic techniques for compiling object-oriented languages. Overall architecture of a compiler. • **Lab:** Completion and testing of the programming project. Presentation of key results.

13	**Final Project Presentations and Evaluation** • **Theory:** Presentation and evaluation of student projects; feedback. • **Lab:** Final project presentations and discussion.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• In-class lectures • Workshops • Active learning (hands-on learning) – Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in Teaching and Communication with Students • PowerPoint presentations • Use of digital tools and platforms • Teaching material, announcements, and communication via the eClass platform • Students' study of supporting material related to the course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	

Activity	***Workload/semester***
Lectures	26
Laboratory Exercises	13
Final Assignment	50
Weekly projects / assignments	36
Independent study	22
Final examination	3
Total	150

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative assessment Weekly projects: 40% Assignment (mandatory): 30% Final examination: 30%

5. SUGGESTED BIBLIOGRAPHY

Σχεδίαση και Κατασκευή Μεταγλωττιστών, K. D. Cooper and L. Torczon, Πανεπιστημιακές Εκδόσεις Κρήτης, 2018.

Μεταγλωττιστές, A.V. Aho, M.S. Lam, R.Sethi, J.D.Ullman, Εκδόσεις Νέων Τεχνολογιών, 2011

Μεταγλωττιστές, Ν. Παπασπύρου- Ε. Σκορδαλάκης, Εκδόσεις Συμμετρία, 2002

Πραγματολογία των Γλωσσών Προγραμματισμού, M. L. Scott, Εκδόσεις Κλειδάριθμος, 2009

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXX
Contact details:	XXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Group project (40%): Development of a business plan or a digital marketing campaign for a cultural and/or tourism organisation. Individual assignment (30%): Analytical case study of an existing business or campaign. Final written examination (30%): Theoretical questions covering the course material.
Implementation Instructions: (3)	The written assessments and the final examination will be conducted via the eClass platform on a date and time that will be announced in advance, together with the duration and content of the assessment. The assignment will be submitted through eClass on a specified date.

(154) Please write YES or NO

(155) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(156) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

COMPUTER VISION

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΨΕΦ5	**SEMESTER**	6TH
COURSE TITLE	COMPUTER VISION		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

The aim of the course is to develop well-founded knowledge and understanding of the fundamental principles, methods, and algorithms of Computer Vision, with an emphasis on the analysis, processing, and interpretation of visual data. The course seeks to familiarize students with the basic techniques of image formation and representation, feature detection and description, multi-view geometric analysis, motion estimation, and object recognition, as well as with the fundamental principles of machine learning and deep learning in the field of Computer Vision. Upon completion of the course, students will have acquired the ability to apply established Computer Vision methods to clearly defined problems, to analyze and evaluate the results of the applied techniques, and to combine individual methodologies in order to solve complex problems within the discipline.

After the successful completion of the course, participants will be able to:

- Describe and explain the fundamental concepts, core problems, and main methodologies of Computer Vision, including the formation and representation of digital images.
- Apply basic image processing and analysis techniques to extract information from visual data, such as edge detection, feature detection, and region-of-interest identification.
- Implement and use methods for feature matching, geometric transformations, and parameter estimation for image alignment and scene reconstruction.
- Analyze and evaluate Computer Vision algorithms in terms of performance, accuracy, and limitations on images and video.
- Use basic techniques of motion analysis, stereo vision, and object recognition to address complex problems.
- Combine individual Computer Vision methods and document their choices and results,

working independently and/or in a team.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*
Production of new research ideas	

- Search, analysis and synthesis of data and information
- Decision making
- Autonomous work
- Working in an international environment
- Working in an interdisciplinary environment
- Production of new research ideas
- Project design and management

3. COURSE CONTENT

1. **Introduction to Computer Vision**
- Definition and core problems of Computer Vision
- Application areas
- Relationship with image processing and machine learning

2. **Digital Image Formation and Optical Sensors**
- Physical principles of image formation
- Cameras and sensors
- Sampling and quantization

3. **Digital Representation of Images and Color**
- Image representation
- Color models
- Photometry and illumination

4. **Basic Image Processing Techniques**
- Image filtering
- Linear and non-linear filters
- Fourier analysis and multiscale analysis

5. **Edge, Contour, and Region Detection**
- Edge detection
- Image segmentation
- Detection of regions of interest

6. **Feature Detection and Description**
- Interest points
- Feature descriptors
- Scale and rotation invariance

7. **Feature Matching and Image Alignment**
- Feature matching
- Geometric transformations
- Image alignment and mosaicking

8. **Parameter Estimation and Robust Methods**
- Least squares method
- Hough transform
- RANSAC and robust estimation

9. **Camera Models and Projective Geometry**
- Camera models
- Projective transformations

- Camera calibration

10. **Multi-View Geometry and Stereo Vision**

- Epipolar geometry
- Stereo image matching
- Three-dimensional reconstruction

11. **Motion Analysis and Optical Flow**

- Optical flow estimation
- Motion analysis
- Object tracking

12. **Object and Category Recognition**

- Recognition methods
- Classical approaches
- Applications of object recognition

13. **Machine Learning and Deep Learning in Computer Vision**

- Introduction to machine learning
- Convolutional Neural Networks
- Contemporary methods and trends

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• In-class lectures • Workshops • Active learning (hands-on learning) – Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• Use of ICT in Teaching and Communication with students: • PPT presentations • Use of digital tools and platforms • Teaching material, announcements, and communication via the eClass platform • Students' study of supporting material related to the course content • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	

Activity	***Workload/semester***
Lectures	26
Laboratory sessions	13
Final project	30
Weekly projects / assignments	38
Independent study	40
Final examination	3
Total	150

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others*	Formative assessment • Weekly projects: **40%** • Assignment (mandatory): **30%** • Final examination: **30%**

Please indicate all relevant information about the course assessment and how students are informed	

5. SUGGESTED BIBLIOGRAPHY

- Gonzalez, R. C., Woods, R. E., *Ψηφιακή Επεξεργασία Εικόνας*. Εκδόσεις Τζιόλα, 2018 (Κωδικός βιβλίου στον Εύδοξο: 68384821)
- Τσιχριντζής Γ., *Ανάλυση Εικόνας*. Εκδόσεις Βαρβαρήγου, 2014 (Κωδικός βιβλίου στον Εύδοξο: 4281)
- Klette R., *Εισαγωγή στην Όραση Υπολογιστών*, Εκδόσεις Φούντας, 2021 (Κωδικός Βιβλίου στον Εύδοξο: 102074869)
- Szeliski R, *Όραση Υπολογιστών*, Εκδόσεις Φούντας, 2022 (Κωδικός Βιβλίου στον Εύδοξο: 102074869)
- *MACHINE VISION*, by Ramesh Jain, Rangachar Kasturi, Brian G. Schunck, Published by McGraw-Hill, Inc., ISBN 0-07-032018-7, 1995, http://www.cse.usf.edu/~r1k/MachineVisionBook/MachineVision.pdf
- Παπαμάρκος, Ν., *Ψηφιακή Επεξεργασία και Ανάλυση Εικόνας*, Εκδ. 5η/2013, Εκδ. Κρίκος-Αφοί Παπαμάρκου.
- Πήτας, Ι., *Ψηφιακή Επεξεργασία Εικόνας*, , Εκδ. 2η/2010, ΘΕΣ/ΝΙΚΗ.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly projects / tests: 40% Assignment (mandatory): 30% Final examination: 30%
Implementation Instructions: (3)	Written tests and the final examination will be conducted via eClass on a date and time that will be announced in advance, together with their duration and content, within a reasonable period prior to their administration. The assignment will be submitted via eClass on a specified date.

(157) Please write YES or NO

(158) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(159) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

7TH SEMESTER

COURSE OUTLINE

INFORMATICS IN EDUCATION

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΠΔΕ6	**SEMESTER**	7TH
COURSE TITLE	COMPUTER SCIENCE IN EDUCATION		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SKILL DEVELOPMENT
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After the successful completion of the course, participants will be able to:

- Study and understand the institutional framework of Computer Science education in Greek schools.
- Analyze and formulate evaluative judgments/assessments for the Curriculum of Computer Science in primary and secondary education.
- Analyze and formulate evaluative judgments/assessments for the textbooks of Computer Science in primary and secondary education.
- Familiarize themselves with innovative ways to utilize digital tools, platforms, and resources to create engaging, student-oriented learning environments.
- Apply knowledge and skills for the effective teaching of Computer Science in primary and secondary education.
- Utilize AI-based tools for teaching Computer Science.
- Design and implement activities that leverage the STEM/STEAM methodology.
- Develop skills for designing and implementing lessons in primary and secondary education, incorporating cutting-edge educational technology and pedagogical strategies in their teaching choices.
- Apply differentiated/personalized instruction using adaptive technologies.
- Implement methods for assessing expected learning outcomes through digital tools.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information, Project design and management

ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*
Production of new research ideas	

- Search, analysis and synthesis of data and information, using the appropriate technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Respect for diversity and multiculturalism
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promotion of free, creative, and inductive thinking

3. COURSE CONTENT

1	Introduction, updates, organization of the course. Scientific writing.
2	The subject of Computer Science in primary and secondary education: a brief historical overview, institutional framework, models for integrating ICT in education.
3	Computer Science curricula and school textbooks in primary and secondary education: a critical perspective.
4	Objectives of the Computer Science courses.
5	Teaching methodology for the Computer Science courses in primary and secondary education.
6	Introduction to educational software.
7	Innovative ways to utilize digital tools, platforms, and resources to create engaging, student-oriented learning environments.
8	Utilization of learning management systems, multimedia tools, and interactive simulations to support the teaching of Computer Science.
9	Digital applications/digital media: the contribution of the subject of Computer Science to the implementation of innovations in teaching.
10	Computational thinking and STEM/STEAM.
11	Artificial intelligence in Computer Science teaching.
12	Lesson design for a unit from the curricula of Computer Science courses for primary education.
13	Lesson design for a unit from the curricula of Computer Science courses for secondary education.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Face-to-face/Lectures • Differentiated teaching • Online communication for guidance and feedback during lesson plan development • Laboratory teaching/applications
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in – teaching – laboratory training – communication with students
TEACHING ORGANIZATION *The ways and methods of teaching are*	***Activity*** | ***Workload/semester*** Lectures | 26

described in detail. *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	Study and analysis of bibliography: 53 Laboratory training/applications: 13 Development of lesson plans: 55 Examinations: 3 Total: 150
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Lesson plans: 40% Final examinations: 60%

5. SUGGESTED BIBLIOGRAPHY

1. Βούλγαρη, Η., Ροϊνιώτη, Ε., Κουτρομάνος, Γ., Σιντόρης, Χ., &Μάνεσης, Δ. (2024). *Ψηφιακά παιχνίδια και μάθηση* [Προπτυχιακό εγχειρίδιο]. Κάλλιπος, Ανοικτές Ακαδημαϊκές Εκδόσεις. https://dx.doi.org/10.57713/kallipos-250

2. Δημητριάδης, Σ. (2015). *Θεωρίες μάθησης και εκπαιδευτικό λογισμικό* [Προπτυχιακό εγχειρίδιο]. Κάλλιπος, Ανοικτές Ακαδημαϊκές Εκδόσεις.
https://dx.doi.org/10.57713/kallipos-665

3. Miller, M. D. (2014). *Minds online: Teaching effectively with technology*. Harvard University Press.

4. Παγγέ, Τ. (2015). *Εκπαιδευτική τεχνολογία και εφαρμογές διαδικτύου*. Εκδόσεις Δίσιγμα.Κάλλιπος, Ανοικτές Ακαδημαϊκές Εκδόσεις. https://dx.doi.org/10.57713/kallipos-335

5. Roblyer, D.& Doering H. A. (2014). *Εκπαιδευτική Τεχνολογία και Διδασκαλία* (Επιμ. Μουντρίδου Μ.). Αθήνα: Εκδοτικός Όμιλος Ίων.

6. Φεσάκης Γ. (2019). *Εισαγωγή στις εφαρμογές των ψηφιακών τεχνολογιών στην εκπαίδευση*. Αθήνα: Gutenberg.

7. Ψυχάρης Σ., Καλοβρέκτης Κ. (2021). *Διδακτική και σχεδιασμός εκπαιδευτικών δραστηριοτήτων STEM & ΤΠΕ*. Θεσσαλονίκη: Εκδόσεις Τζιόλα.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	K. SGOUROPOULOS
Contact details:	ksgourop@he.duth.gr
Supervisors: (1)	NO
Evaluation methods: (2)	Lesson plans: 40% Final examinations: 60%
Implementation Instructions: (3)	The submission of assignments and the final exam will take place via e-Class on a predetermined date.

(160) Please write YES or NO

(161) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(162) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

DIGITAL AUDIO PROCESSING

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΨΕΦ6	**SEMESTER**	7TH
COURSE TITLE	DIGITAL AUDIO PROCESSING		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

The aim of the course is the systematic understanding and in-depth study of the fundamental principles, methods, and algorithms that underpin modern digital audio signal processing. The course focuses primarily on the technological and analytical aspects of audio processing, with emphasis on the operation, structure, and design of digital audio effects and systems. Through a combination of theoretical instruction and laboratory practice, the course seeks to familiarize students with core algorithmic techniques in digital audio processing, to develop skills in the design, implementation, and adaptation of audio processing tools, and to foster an understanding of the technical constraints and requirements associated with contemporary applications in digital art, interactive systems, and audio technology.

After the successful completion of the course, participants will be able to:

- Understand and interpret the fundamental principles of digital audio representation and processing.
- Describe the structure, operation, and limitations of basic digital systems and audio effects.
- Design and implement basic digital audio processing algorithms for creative and technological applications.
- Modify and adapt existing audio processing tools to meet specific artistic or technical requirements.
- Apply filtering, temporal, spectral, and dynamic processing techniques to digital audio signals.
- Analyze problems and collaborate effectively in the development of modern digital audio and interactive media applications.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*
Production of new research ideas	

- Search, analysis and synthesis of data and information
- Decision making
- Autonomous work
- Working in an international environment
- Working in an interdisciplinary environment
- Production of new research ideas
- Project design and management

3. COURSE CONTENT

1. **Lesson 1: Introduction to Digital Audio Processing**
   Definition of sound as a physical and digital phenomenon
   Concept of signal and system
   Distinction between analog and digital systems
   Advantages and limitations of digital processing
   Historical development of digital audio systems
   Overview of contemporary applications in art, music, multimedia, and interactive systems
2. **Lesson 2: Sampling Theory and A/D Conversion**
   Nyquist–Shannon theorem
   Continuous and discrete time
   Aliasing phenomenon in the time and frequency domains
   Role of anti-aliasing and reconstruction filters
   Typical filter response curves
   Practical examples of sampling errors
3. **Lesson 3: Sampling Jitter and Conversion Quality**
   Concept and sources of sampling jitter
   Effects of jitter on auditory perception
   Differences between clock-based systems
   Methods for reducing jitter in digital systems
   Auditory evaluation of distortions
4. **Lesson 4: Quantization and Quantization Noise**
   Amplitude quantization theory
   Quantization as a source of additive noise
   Dynamic range and signal-to-noise ratio (SNR)
   Bit depth and its relationship to perceived audio quality
   Representation of one-dimensional and multidimensional signals
5. **Lesson 5: Dithering and Noise Shaping**
   Clipping and its auditory effects
   Dithering techniques and statistical characteristics
   Typical types of dither generators
   Quantization noise shaping
   Practical applications in mastering and post-production
6. **Lesson 6: Representation of Digital Systems**
   Difference equations
   Impulse response and unit step
   Linear time-invariant (LTI) systems
   Classification of audio processing algorithms

Real-time and non-real-time processing

7. **Lesson 7: Dynamic Range Processing I**
   Concept of gain, amplification, and attenuation
   Signal normalization
   Compression and expansion
   Noise gating
   Mathematical modeling of dynamic processors
8. **Lesson 8: Dynamic Range Processing II**
   RMS normalization
   Fade-in, fade-out, and crossfading
   ADSR envelopes
   Windowing in the time domain
   Applications in music, sound design, and interactive works
9. **Lesson 9: Spatial Placement and Audio Mixing**
   Balance and amplitude panning
   Stereo and multichannel systems
   Signal summation and basic mixing principles
   Spatial perception and stereo imaging
   Limitations and auditory artifacts
10. **Lesson 10: Memory-Based Processing and Delays**
    Concept of memory in digital systems
    Buffers and circular buffers
    Data structures: stacks and queues
    Implementation of a simple delay unit
    Synchronization issues in real-time systems
11. **Lesson 11: Digital Filters for Audio Applications**
    Comparison of analog and digital filters
    FIR and IIR filters
    Frequency response and stability
    Comb filters
    Practical applications in audio effects
12. **Lesson 12: Spectral Analysis of Sound**
    Discrete Fourier Transform (DFT)
    Fast Fourier Transform (FFT)
    Windowing and spectral leakage
    Spectrogram and its interpretation
    Analysis of complex audio signals
13. **Lesson 13: Advanced Audio Effects and Interactive Systems**
    Flanger, chorus, slapback, and echo
    Implementation of reverberation effects (reverb)
    Equalization and filter banks
    Parameter control through interactive systems
    Applications in digital art and multimedia

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• In-class lectures • Workshops • Active learning (hands-on learning) – Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	• Use of ICT in Teaching and Communication with students: • PPT presentations • Use of digital tools and platforms • Teaching material, announcements, and communication via the eClass platform

<table>
<tr><td></td><td>

- Students' study of supporting material related to the course content
- Communication with students via email

</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td>
<table>
<tr><th>Activity</th><th>Workload/semester</th></tr>
<tr><td>Lectures</td><td>26</td></tr>
<tr><td>Laboratory sessions</td><td>13</td></tr>
<tr><td>Final project</td><td>30</td></tr>
<tr><td>Weekly projects / assignments</td><td>38</td></tr>
<tr><td>Independent study</td><td>40</td></tr>
<tr><td>Final examination</td><td>3</td></tr>
<tr><td>Total</td><td>150</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others

Please indicate all relevant information about the course assessment and how students are informed</td><td>Formative assessment

- Weekly projects: **40%**
- Assignment (mandatory): **30%**
- Final examination: **30%**

</td></tr>
</table>

5. SUGGESTED BIBLIOGRAPHY

Basic Bibliography

1. Καραμπογιάς, Σ., *Σήματα και Συστήματα*, Αθήνα: Σύνδεσμος Ελληνικών Ακαδημαϊκών Βιβλιοθηκών, 2015.
   Διαθέσιμο ηλεκτρονικά: https://hdl.handle.net/11419/2992
2. Ασημάκης, Ν., Αδάμ, Μ., *Σήματα και Συστήματα*, Αθήνα: Σύνδεσμος Ελληνικών Ακαδημαϊκών Βιβλιοθηκών, 2015.
   Διαθέσιμο ηλεκτρονικά: https://hdl.handle.net/11419/5311
3. Lyons, R. G., *Understanding Digital Signal Processing*, 3rd ed., Boston: Pearson Education, 2011.

Supplementary Bibliography

4. Oppenheim, A. V., Schafer, R. W., *Discrete-Time Signal Processing*, 3rd ed., Upper Saddle River, NJ: Pearson, 2010.
5. Zölzer, U. (ed.), *DAFX: Digital Audio Effects*, 2nd ed., Chichester: Wiley, 2011.
6. Puckette, M., *The Theory and Technique of Electronic Music*, Singapore: World Scientific, 2007. Διαθέσιμο ηλεκτρονικά: http://msp.ucsd.edu/techniques.htm
7. Pirkle, W., *Designing Audio Effect Plug-Ins in C++*, 2nd ed., New York: Focal Press, 2019.

- Bosi, M., Goldberg, R., *Audio Signal Processing and Coding*, Boston: Springer, 2003.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly projects / tests: 40% Assignment (mandatory): 30% Final examination: 30%
Implementation Instructions: (3)	Written tests and the final examination will be conducted via eClass on a date and time that will be announced in advance, together with their duration and content, within a reasonable period prior to their administration. The assignment will be submitted via eClass on a specified date.

(163) Please write YES or NO

(164) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(165) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

ALGORITHMS AND CULTURAL DATA ANALYSIS

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΨΕΦ7	**SEMESTER**	7TH
COURSE TITLE	ALGORITHMS AND CULTURAL DATA ANALYSIS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA SKILL DEVELEPMENT
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After successful completion of the course, participants will be able to:

• develop a broad understanding of approaches to culture and the quantification of cultural data.

• understand methods of cultural data analysis and their importance for research in the humanities and social sciences.

• critically reflect on the results produced by computational methods, considering ethical, statistical, and empirical/material issues.

• understand the benefits and limitations of digital research in the study of culture.

• evaluate scientific practices and how they contribute to the study of culture through interdisciplinary approaches.

• frame research on cultural analysis using computational tools.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information, ICT Use
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Production of new research ideas
- Equity and Inclusion
- Promotion of free, creative, and inductive reasoning

3. COURSE CONTENT

1	Introduction to Algorithms and Cultural Data Analysis	• What is cultural data analysis? • How do algorithms relate to the analysis of cultural phenomena? • Historical development and contemporary applications in culture (history, arts, social networks).
2	Basic Principles of Algorithms, Complexity, and Big Data	• Fundamental principles of algorithms. • Introduction to Big Data and its analysis. • Algorithms and complexity analysis. • Time and space complexity (Big-O notation) in the processing of cultural data.
3	Cultural Text Analysis with Natural Language Processing (NLP)	• Basic concepts of Natural Language Processing (NLP). • Applications of NLP to cultural data (sentiment analysis, text modelling). • Analysis of textual data from cultural sources (literary texts, historical documents) using NLP.
4	Topic Modelling with Algorithms	• Theory and methods of topic modelling (LDA, NMF). • Applications to cultural data: extraction of themes from cultural texts. • Applications in literature, history, and journalism. • Case studies using historical and contemporary datasets.
5	Image Analysis and Visual Cultural Heritage – Computer Vision	• Introduction to computer vision and algorithms for image recognition and processing. • Use of algorithms for analysing visual data in artworks (photographs, works of art). • Classification of cultural images using algorithms.
6	Pattern Recognition in Cultural Data and Classification Algorithms	• Basic techniques of pattern recognition in cultural data. • Classification and clustering algorithms for cultural datasets. • Applications in art, archaeology, and music. • Examples of clustering and pattern analysis in cultural data.
7	Machine Learning in Cultural Analysis	• Introduction to machine learning and its role in cultural analysis. • Neural networks, supervised and unsupervised learning for analysing cultural data. • Applications in music, art, history, and language.
8	Cultural Data Analysis from Social Networks	• Analysis of data from social media platforms (e.g., Twitter, Instagram). • Introduction to Social Network Analysis (SNA). • Tools for analysing social network data. • Extraction of cultural trends from user

		interactions.
9	Sentiment Analysis in Cultural Texts	• Sentiment analysis techniques. • Applications for analysing sentiment in literary works, historical documents, and social networks • Interpretation of emotional trends in cultural data. • Sentiment analysis in social media data and literary texts
10	Visualisation and Publication of Cultural Data	• Principles of data visualisation. • Presentation of cultural data through graphs, maps, and diagrams. • Creation of interactive cultural experiences through visualisations and simulations using interactive data visualisation tools
11	Ethical and Legal Issues in Cultural Data Analysis	• Ethical and legal issues in data analysis. • Issues of privacy, cultural heritage management, and algorithmic bias • Discussion of ethical issues arising during the collection and analysis of cultural data (personal data, intellectual property) • Case studies of ethical dilemmas and best practices.
12	Presentation of Projects	• Student project presentations. • Discussion of results using contemporary analytical approaches. • Development of research communication skills.
13	Recapitulation	• Course review and clarification of questions. • Student feedback on the course.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• In-class lectures • Active learning (hands-on learning) – Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in Teaching and Communication with Students • PowerPoint presentations • Teaching material, announcements, and communication via the eClass platform • Students' study of supporting material related to the course content • • Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	

Activity	***Workload/semester***
Lectures	26
Laboratory Exercise	13
Final Assignment	30
Weekly projects / assignments	38
Independent study	40
Final examination	3
Total	150

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative assessment Public presentation: 10% Laboratory assignment: 10% Assignment (mandatory): 20% Written final examination: 60% Oral examination upon request by the student.

5. SUGGESTED BIBLIOGRAPHY

1. Lev Manovich.(2020) Cultural Analytics
2. Shahin Jalili. (2022) Cultural Algorithms. Recent Advances
3. Robert G. Reynolds (2020) Cultural Algorithms: Tools to Model Complex Dynamic Social Systems

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXX
Contact details:	XXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Laboratory assignment: 10% Assignment (mandatory): 20% Public presentation: 10% Written final examination: 60%
Implementation Instructions: (3)	**Laboratory Assignment (10%):** This assignment consists of students' reports on their laboratory visits and practical training according to the laboratory protocols. The evaluation focuses on students' practical skills, such as their ability to follow laboratory procedures, as well as on the clarity and completeness of the report they submit. **Assignment (Mandatory) (20%):** This assignment prepares students for the writing of scientific research aimed at publication and for the preparation of their thesis. It includes a literature review and original data analysis. The evaluation focuses on students' ability to review relevant literature, analyse data, and assess the quality, relevance, and originality of their work. The selection of the assignment topic will take place in collaboration with the instructor during the second lecture, in order to ensure sufficient time for the preparation of both the assignment and the presentation. The final assignment will be submitted to the instructor through the eClass platform. **Public Presentation (10%):** The public presentation concerns the presentation of the mandatory assignment through a PowerPoint (ppt) presentation prepared by the student. The evaluation focuses on students' ability to present their work clearly, respond to questions, and manage discussion. **Written Final Examination (60%):** The final written examination assesses the understanding of the main theories, concepts, and principles of the course. The examination will be conducted in person on a date and time announced in advance, together with the duration and content of the examination.

(166) Please write YES or NO

(167) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(168) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

DIGITAL STORYTELLING: STRUCTURES AND TECHNIQUES

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΨΕΦ8	**SEMESTER**	7TH
COURSE TITLE	DIGITAL STORYTELLING: STRUCTURES AND TECHNIQUES		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA SKILL DEVELOPMENT
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After the successful completion of the course, participants will be able to:

- identify and recognize the types of narration,
- understand the structure and elements of narration (plot, characters, time, mood, voice), studying aspects of Structural Narratology and General Narratology,
- locate the structure and elements of narration in literary works,
- realize the interrelation between narration and culture and the significance of narration in human communication,
- understand the meaning of digital storytelling,
- familiarize themselves with the digital tools that transform a narrative into a digital format or create a digital narrative,
- acquire skills and know strategies for creating and presenting digital stories, tailored to various digital platforms,
- create and publish digital narratives on social networks or websites, enhancing their writing and presentation skills,
- develop multimedia narratives combining text, images, sound, and video.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,	*Project design and management*
ICT Use	*Equity and Inclusion*
Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*

Autonomous work *Teamwork* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Demonstration of social, professional and moral responsibility and sensitivity to gender issues* *Critical thinking* *Promoting free, creative and inductive reasoning*

- Search, analysis and synthesis of data and information, using the appropriate technologies
- Individual work
- Teamwork
- Working in an interdisciplinary environment
- Respect for diversity and multiculturalism
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promotion of free, creative, and inductive thinking

3. COURSE CONTENT

1	Narration (Storytelling): conceptual delimitations.
2	Narrative literary genres: study of structural elements and construction.
3	Study of narrative texts in greek and foreign literatures: identification of generic characteristics and structural elements.
4	Digital Storytelling: conceptual delimitations.
5	Narration vs. Digital Storytelling: similarities and differences.
6	Interactive digital narration and creative writing.
7	Digital media for creating digital narratives: presentation and study of tools and software for creating digital stories.
8	Applications: creating digital narratives using tools and platforms (Story Bird, Lego Comic Builder, Cosy Comic Strip Creator, Camtasia Studio, Story Jumper, Canva, etc.).
9	Utilization of digital narratives in education: conditions for successful use of Digital Storytelling as a learning strategy.
10	Utilization of digital narratives for interdisciplinary approaches in education.
11	Evaluation of digital narratives with reference to creativity, appeal, and their contribution to achieving educational/teaching goals.
12	Creation and presentation of digital narratives by students.
13	Evaluative assessment of the course.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	Face-to-Face/Lectures Differentiated instruction Collaborative teaching Laboratory teaching Flipped classroom Online communication for guidance and feedback during assignment preparation Collaboration among student groups
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students – Powerpoint presentations – Videos – Utilization of multimodal-multimedia material in teaching – Communication and coordination of study and assignment preparation via e-class and social media platforms.
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.*	

Activity	*Workload/semester*
Lectures	26

Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc. *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	Study and analysis of bibliography	53
	Group collaboration/Laboratory applications	13
	Digital narratives creation	55
	Final examinations	3
	Total	150
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Lesson plans: 40% Final examinations: 60%	

5. SUGGESTED BIBLIOGRAPHY

1. Αποστολίδου, Β. (2012). *Η λογοτεχνία στα νέα περιβάλλοντα των ΤΠΕ: κυβερνολογοτεχνία και e-books, ψηφιακές κοινότητες αναγνωστών, δημιουργική γραφή και αφήγηση στον ψηφιακό κόσμο*. Θεσσαλονίκη: Κέντρο Ελληνικής Γλώσσας.
https://www.openbook.gr/i-logotechnia-sta-nea-perivallonta-twn-tpe/

2. Γκουτσιουκώστα, Ζ. (2017). Ψηφιακές Ιστορίες (DigitalStories): Από το μαθητή αναγνώστη στο μαθητή συγγραφέα, στο Αποστολίδου, Β., Κόκορης, Μ., Μπακογιάννης, Γ. &Χοντολίδου, Ε. (επιμ.) *Λογοτεχνική ανάγνωση στο σχολείο και στην κοινωνία*, 729-740. Αθήνα: Gutenberg.

3. Μουταφίδου, Α &Μπράτιτσης, Θ. (2013). Ψηφιακήαφήγηση και δημιουργικήγραφή: δύοπαράλληλοικόσμοι με κοινότόπο. *1ο ΔιεθνέςΣυνέδριοΔημιουργικήςΓραφής*.
http://cwconference.web.uowm.gr/archives/1st_conference/moutafidou_bratitsis_article.pdf

4. Rizvic, S., et al., (2019). Interactive digital storytelling: bringing cultural heritage in a classroom.*Journal of Computers in Education*, 6(1), 143–166.
doi: 10.1007/s40692-018-0128-7

5. Robin, B.R. (2016). The Power of Digital Storytelling to Support Teaching and Learning. *Digital Education Review*, 30, 17-29.

6. Storr, W. (2020). *Science of Storytelling. Why Stories Make Us Human, and How to Tell Them Better*. AbramsPress.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXX
Contact details:	XXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Creation of digital narratives: 40% Final examinations: 60%
Implementation Instructions: (3)	The submission of assignments and the final exam will take place via e-Class on a predetermined date.

(169) Please write YES or NO

(170) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(171) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

8TH SEMESTER

COURSE OUTLINE

INTERPERSONAL AND INTERGROUP RELATIONS

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / PHILOLOGY, HISTORY AND ANTHROPOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΠΔΕ7	**SEMESTER**	8TH
COURSE TITLE	INTERPERSONAL AND INTERGROUP RELATIONS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- Master the basic theories and concepts of interpersonal relations and romantic relationships.
- Apprehend key concepts, main theories and research evidence concerning prosocial behavior.
- Understand the structure, functions, context and dynamics of social groups.
- Differentiate the concepts of social roles and social rules and know their attributes in the context of social groups.
- Have a thorough and in depth knowledge about phenomena and processes with respect to social influence.
- Comprehend the nature of prejudice and the structure and function of stereotypes.
- Explain human behavior in terms of intergroup relations and intergroup dynamics.
- Distinguish leadership styles and understand effective leadership.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

Production of new research ideas

- Adaptation to new situations
- Autonomous work
- Working in an international environment
- Working in an interdisciplinary environment
- Equity and Inclusion
- Critical thinking
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Interpersonal relations – attraction, intimacy, closeness. Theories of love and romantic partner choice. Adult attachment theory.
2. Prosocial behavior – The bystander effect, altruism and motives for helping behavior, personal and empathic cost from not acting prosocially, applied contexts of prosocial behavior research and interventions for advancing prosocial behavior.
3. The social group – Conceptualization, formation and attributes of social groups. Social norms and social rules.
4. Social influence – obedience to authority and conformity. The studies of Milgram, Zimbardo and Asch.
5. Social influence – Minority influence. The theoretical framework and experimental studies of Serge Moscovici.
6. Minority influence and social change.
7. Leadership – Leadership styles, attributes of the leader.
8. Decision making – collective polarization, risky shift, groupthink and brainstorming.
9. Prejudice and discrimination – The nature and construct of prejudice, forms of prejudice and discrimination.
10. Stereotype – Conceptualization, structure, content, function, stereotype change, metastereotype, stereotype threat.
11. Social identity theory
12. Intergroup relations – Authoritarian personality, realistic conflict, relative

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	Face to face
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	E class, e mail, live streaming
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written*	Essay writing (literature review) – 30% Written examination at the end of the semester – 70%

Activity	***Workload/semester***
Classes attendance	39
Individual reading and preparation for the written exams	60
Essay writing (literature review)	46
Written examination	5
Total	150

Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

5. SUGGESTED BIBLIOGRAPHY

Textbooks

1. Hogg, M.A. & Vaughan, G.M. (2010). Κοινωνική ψυχολογία (επιμέλεια Αλεξάνδρα Χαντζή). Αθήνα: Gutenberg.
2. Hewstone, M&Stroebe, W. (2007). Εισαγωγή στην κοινωνική ψυχολογία (επιμέλεια Γίωργος Γαλάνης). Αθήνα – Παπαζήσης.

Other Recommended Bibliography

1. Γαρδικιώτης, Α. (2008). Κοινωνική επιρροή, επισκόπηση και αξιολόγηση της έρευνας και των θεωριών. Αθήνα: Gutenberg.
2. Κοκκινάκη, Φ. (2005). Κοινωνική Ψυχολογία: εισαγωγή στη μελέτη της κοινωνικής συμπεριφοράς. Αθήνα: Εκδόσεις Τυπωθήτω.
3. Χαντζή, Α. (1999). Κοινωνική ψυχολογία. Στο Σ. Βοσνιάδου (Επιμ.), Εισαγωγή στην ψυχολογία (τόμος Β'). Αθήνα: Gutenberg.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	E. LAMPRIDIS
Contact details:	elamprid@he.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Essay writing (literature review) – 30% Written examination at the end of the semester – 70%
Implementation Instructions: (3)	Detailed information are uploads at the e class of the course. Students electronically submit their essays until the 10th week of classes. Written examination through e class platform. Students answer to 30 multiple choice questions randomly presented to each student. Time for answering each question two minutes. In order to pass the course students should answer correctly at least to 50%of the questions. The final mark is calculated taking into account students' performance in the essay as presented above.

(172) Please write YES or NO

(173) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(174) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

INTERCULTURAL PEDAGOGY

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / PHILOLOGY, HISTORY AND ANTHROPOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΠΔΕ8	**SEMESTER**	8TH
COURSE TITLE	INTERCULTURAL PEDAGOGY		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	BACKGROUND, SKILL DEVELOPMENT
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon successful completion of the course, participants will be able to:

- understand concepts/definitions of Intercultural Education
- develop a critical discourse on the development of Intercultural Education
- study and clarify basic concepts of intercultural communication, research and teaching
- study and understand basic concepts of social conflicts
- study, understand and clarify basic concepts of social exclusion and structural violence
- study and evaluate the theoretical approach to the migration experience
- understand the causes and effects/implications of the contemporary migration phenomenon.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Searching, analysing and synthesising data and information using the necessary technologies
- Adapting to new situations
- Decision-making
- Autonomous work

- Teamwork
- Working in an intercultural environment
- Working in an interdisciplinary environment
- Generating new research ideas
- Project planning and management
- Exercising criticism and self-criticism
- Producing free, creative and deductive thinking

3. COURSE CONTENT

1	Introduction to Intercultural Pedagogy
2	Historical approach
3	Critical examination and discussion of the terms “culture”, “cultural identity” and “interculturality”
4	Definition of the term multiculturalism and the theoretical approach of A. Sen and M. Nussbaum (Capability Approach)
5	Intercultural education on the basis of equality and social justice.
6	Models for managing multiculturalism (assimilation model, integration model, anti-racist education)
7	The concept of Intercultural Education and the dilemma of cultural differences ("cultural universalism and relativism")
8	Theories of Social Recognition (Taylor, Habermas, Honneth)
9	Social conflicts, social exclusion and structural violence
10	Theory and practice - Current trends in the scientific dialogue of Intercultural Pedagogy
11	Intercultural Communication and Intercultural Competence of the teacher
12	Intercultural research: Examples of qualitative and quantitative data analysis
13	Recap and Discussion of the students' work

4. LEARNING & TEACHING METHODS - EVALUATION

<table>
<tr><td>TEACHING METHOD
Face to face, Distance learning, etc.</td><td>• Lectures
• Active learning (hands-on learning) - Experiential learning
• Collaborative learning</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>Use of ICT in teaching and communication with students
• PPT presentations
• Teaching material, announcements and communication through the eClass platform
• Student study of supplementary material related to course content
• Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>39</td></tr><tr><td>Seminars</td><td>31</td></tr><tr><td>Study and analysis of bibliography</td><td>40</td></tr><tr><td>Practical exercises</td><td>40</td></tr><tr><td>Total</td><td>150</td></tr></table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods,</td><td>Participation in research-type work
preparation of a written paper in lieu of the examination.</td></tr>
</table>

Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others *Please indicate all relevant information about the course assessment and how students are informed*	

5. SUGGESTED BIBLIOGRAPHY

- Κούρτης, Ι., Μπάρος, Β. (2024). Η εμβυθιστική τεχνολογία εκτεταμένης πραγματικότητας ως μεθοδολογικό εργαλείο στη μεταναστευτική έρευνα και τον πολιτικό γραμματισμό. Στο Παρθένης, Χ., Γιώτη, Λ., Κατωπόδη, Τ. (Επιμ.). Διά Βίου Εκπαίδευση… (σελ. 82-111).Αθήνα: Gutenberg.
- Μπάρος, Β., Στεργίου, Λ. (2009). Εναλλακτικές διαπολιτισμικές προσεγγίσεις στην εκπαίδευση εκπαιδευτικών: «Μια τάξη φυλετικά διαχωρισμένη» (JaneElliot). Στο: Π. Γεωργογιάννης (Επιμ.). Διαπολιτισμική Εκπαίδευση – Μετανάστευση, Διαχείριση Συγκρούσεων και Παιδαγωγική της Δημοκρατίας (Τόμος Ι, σελ. 111-125). Στο 12ο Διεθνές Συνέδριο 19-21 Ιουνίου 2009. Πάτρα: Πανεπιστημιακές Εκδόσεις.
- Μπάρος, Β., Μανάφη, Γ. (2008). Η εφαρμογή της θεωρίας των δυνατοτήτων στη Διαπολιτισμική Εκπαίδευση: Μια νέα προοπτική στη βάση της ισότητας και της κοινωνικής δικαιοσύνης. Στο: Π. Γεωργογιάννης (Επιμ.). Διαπολιτισμική Εκπαίδευση – Μετανάστευση, Διαχείριση Συγκρούσεων και Παιδαγωγική της Δημοκρατίας (Τόμος Ι, σελ. 318-330). Στο 11ο Διεθνές Συνέδριο 11-13 Ιουλίου 2008. Πάτρα: Πανεπιστημιακές Εκδόσεις.
- Μπάρος, Β. (2014). IndignationalMigration: Μετανάστευση λόγω αγανάκτησης στην εποχή της οικονομικής κρίσης στην Ευρώπη. Στο: Β. Μπάρος, Λ. Στεργίου & Κ. Χατζηδήμου (Επιμ.), Ζητήματα Διαπολιτισμικής Επικοινωνίας και Εκπαίδευσης (σελ. 35-48). Αθήνα: Διάδραση.
- Παρθένης, Χ., Γιώτη, Λ., Κατωπόδη, Τ. (Επιμ.) (2024). Διά Βίου Εκπαίδευση και Επιμόρφωση Εκπαιδευτικών στις Σύγχρονες Πολυπολιτισμικές Κοινωνίες. Αθήνα: Gutenberg
- Παρθένης, Χ. (2024). Η διαπολιτισμική εκπαίδευση απέναντι σε νέες προκλήσεις – Αναζητώντας κοινούς τόπους συνύπαρξης στις σύγχρονες κοινωνίες. Στο Παρθένης, Χ., Γιώτη, Λ., Κατωπόδη, Τ. (Επιμ.). Διά Βίου Εκπαίδευση… (σελ. 31-47).Αθήνα: Gutenberg.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	V. BAROS
Contact details:	vbaros@bscc.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Participation in research-type work preparation of a written paper in lieu of the examination.
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(175) Please write YES or NO

(176) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(177) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

DIPLOMA DISSERTATION

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / PHILOLOGY, HISTORY AND ANTHROPOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΠΕ1	**SEMESTER**	8TH
COURSE TITLE	DIPLOMA DISSERTATION		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
		10
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon the successful completion of the thesis, the student:

- has studied in depth a specific topic within the scientific fields addressed by the Department,
- has utilized their relevant knowledge gained through studies and has developed both synthesis skills and critical thinking,
- has learned to seek appropriate scientific information from the relevant scientific literature,
- has acquired skills in writing scientific texts,
- has developed skills in organizing and orally presenting the subject of their thesis.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information, ICT Use
- Decision making
- Autonomous work
- Working in an interdisciplinary environment

- Production of new research ideas
- Critical thinking
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Literature Search
2. Literature Review
3. Data Analysis
4. Thesis Writing
5. Oral Presentation of Thesis

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	One-on-one meetings between the supervising professor and the student.
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Communication with students via email
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	

Activity	***Workload/semester***
Guided Study	50
Independent Study	150
Thesis Writing	80
Oral Presentation Preparation	20
Total	300

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	The student presents their work in a public presentation and submits a written document of the thesis to the examination committee. The final evaluation is given by the examination committee.

5. SUGGESTED BIBLIOGRAPHY

Study and writing guidelines are set by the respective supervising professor.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	Thesis Supervisor
Contact details:	XXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Written Assignment and Oral Presentation
Implementation Instructions: (3)	The assignment will be submitted via eClass on a date determined by the supervising professor and will be presented publicly through MS Teams.

(178) Please write YES or NO

(179) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(180) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

COMPUTER SCIENCE, LAW, AND ETHICS

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΨΕΦ9	**SEMESTER**	8TH
COURSE TITLE	COMPUTER SCIENCE, LAW, AND ETHICS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Upon completion of the course, students will be able to:

- Understand the basic principles and regulations governing digital technology and the internet.
- Comprehend issues related to intellectual property, privacy, and data protection.
- Examine ethical issues in computing.
- Evaluate ethical dilemmas related to technology use, such as artificial intelligence, surveillance, censorship, and social networks.
- Apply theoretical knowledge to practical examples, assessing legal and ethical decisions in cases concerning computing.
- Understand the role of international regulations.
- Analyze the international dimension of legislation and regulatory frameworks in the information society, including European Union regulations.
- Develop critical thinking about the relationship between technology, law, and society.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues

Working in an international environment *Working in an interdisciplinary environment* *Production of new research ideas*	*Critical thinking* *Promoting free, creative and inductive reasoning*

- Search, analysis and synthesis of data and information,
- ICT Use
- Autonomous work
- Teamwork
- Equity and Inclusion
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Introduction to Intellectual Property Law - Intangible Goods - Copyright - Trademark - Distinctive Signs - Domain Names - Patents - Design: Basic Principles, Powers, Limits of Protection.
2. Copyright (I) - Subject Matter of Protection - Subject of Rights - Categories of Works.
3. Copyright (II) - Economic Rights - Moral Rights - Powers - Limits of Protection of the Right - Exceptions and Limitations.
4. Intellectual Property Organization and Committee for the Enforcement of Copyright and Related Rights Violations on the Internet.
5. Sui Generis Right on Databases.
6. Advertising Filtering Software and the Law of Intangible Goods.
7. Issues of Copyright Law in the Digital Single Market - Data Mining - Hyperlinks - Liability of Service Providers in the Information Society.
8. Artificial Intelligence as Cutting-Edge Technology - Acquiring Knowledge and Extracting Data through AI.
9. Technological Aspects of AI - Machine Learning and Its Applications/Intelligent Systems.
10. Legal Regulation of AI at the European Union Law Level - Emerging Ethical Issues and Their Addressing.
11. Privacy and Personal Data in the Digital Age - Informational Self-Determination of the Individual and Conflict with Other Constitutional Rights - Institutional Framework.
12. Basic Concepts - Principles of Personal Data Processing - Consent of the Data Subject for Their Processing - Legal Bases for Data Processing.
13. Obligations of the Data Controller and Processor - The Data Protection Officer and Their Obligations - Rights of the Data Subject.

4. LEARNING & TEACHING METHODS - EVALUATION

<table>
<tr><td>TEACHING METHOD
Face to face, Distance learning, etc.</td><td>• Classroom lectures
• Workshops
• Active learning (hands-on learning) – Experiential learning
• Collaborative learning</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>• Use of ICT in Teaching and Communication with Students
• PPT presentations
• Use of digital tools and platforms
• Teaching materials, announcements, and communication via the eClass platform
• Student study of supporting materials related to the course content
• Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis,</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>39</td></tr><tr><td>Seminar Attendance</td><td>3</td></tr></table></td></tr>
</table>

Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc. *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	Educational Visit	3
	Independent Study, Progress Tracking, Exam Preparation, Self-assessment Exercises, Interactive Activities	102
	Final Exam	3
	Total	150
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Written Examination (100%) Alternatively (optional): Written Individual Assignment (worth 30% of the final grade)	

5. SUGGESTED BIBLIOGRAPHY

- Καλλινίκου, Δ., 2021, Πνευματική ιδιοκτησία (Copyright Law), Π. Ν. Σάκκουλας.
- Κοτσίρης, Λ., 2017, Πνευματική ιδιοκτησία και το κοινοτικό κεκτημένο (Copyright Law and acquiscommunautaire), Σάκκουλα.
- Rosati, E., 2021, Copyright in the digital single market: Article by article commentary to theprovisions of Directive 2019/790, Oxford University Press.
- Walter, M., & Lewinski, S. von (Eds), 2010, European Copyright Law: A commentary, OxfordUniversity Press.
- Γιαννόπουλος, Ν. Γ. 2018. *Εισαγωγή στη Νομική Πληροφορική. Μια πρώτη προσέγγιση της σχέσης δικαίου και νέων τεχνολογιών*. Αθήνα: Νομική Βιβλιοθήκη
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- Μανιάτης, Α.Π. 2006. *Δίκαιο Πληροφορικής και Τηλεπικοινωνιών*. Αθήνα: Σάκκουλας
- Floridi, L., Cowls, J., Beltrametti, M., Chatila, et. al, 2018, AI4People: An ethical framework for agood AI society, *Minds Mach 28*(4), 689-707.
- Mittelstadt, B., Allo, P., Taddeo, M., Wachter, S., and Floridi, L., 2016, The ethics of algorithms:Mapping the debate, *Big data & society 3*(2)
- Floridi, L., 2023, The ethics of artificial intelligence: Principles, challenges and opportunities,Oxford University Press.
- White Paper on Artificial Intelligence: A European approach to excellence and trust, February2020, European Commission, https://commission.europa.eu/publications/white-paperartificial-intelligence-european-approach-excellence-and-trust_en.
- Βλαχάβας, Ι., Κεφαλάς, Π., Βασιλειάδης, Ν., Κόκκορας, Φ., & Σακελλαρίου, Η., 2020, Τεχνητή νοημοσύνη, Εκδόσεις Πανεπιστημίου Μακεδονίας.
- Μήτρου, Λ. (Επιμ.), 2023, Μπορεί ο αλγόριθμος... να είναι ηθικός, να είναι δίκαιος, να είναι διαφανής, να δικάζει & να διοικεί;, Πανεπιστημιακές Εκδόσεις Κρήτης.
- Milossi, M., Alexandropoulou, E., &Psannis, K., 2021, AI ethics: Algorithmic determinism or selfdetermination?,*IEEE Access 9*, 58455-58466.
- Μήτρου, Λ. *Η Δημοσιότητα της Κύρωσης ή Η Κύρωση της Δημοσιότητας*, Αθήνα: Σάκκουλας, 2012.
- Μήτρου, Λ. *Ο Γενικός Κανονισμός Προστασίας Προσωπικών Δεδομένων Νέο δίκαιο - νέες υποχρεώσεις - νέα δικαιώματα (Σειρά: Δίκαιο και Κοινωνία στον 21ο Αιώνα)*, Αθήνα,

Θεσσαλονίκη: Σάκκουλας, 2017.
- Κανελλοπούλου-Μπότη, Μ. *Πληροφοριακός αυτοκαθορισμός και προσωπικά δεδομένα : μερικές παρατηρήσεις μετά την πρώτη δεκαπενταετία εφαρμογής του νόμου : με αφορμή το παράδειγμα των ιατρικών φακέλων*, Χρονικά Ιδιωτικού Δικαίου 8 (2012): 561-565.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	G. BABETAS
Contact details:	gbampeta@law.duth.gr
Supervisors: (1)	YES
Evaluation methods: (2)	Written Examination (100%)
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam.

(181) Please write YES or NO

(182) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(183) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

DIGITAL REPRESENTATION AND INTERACTION IN THREE-DIMENSIONAL REALITY

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 7		
COURSE CODE	ΕΕΨΕΦ10	**SEMESTER**	8TH
COURSE TITLE	DIGITAL REPRESENTATION AND INTERACTION IN THREE-DIMENSIONAL REALITY		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

After the successful completion of the course, participants will be able to:

• Understand the basic principles and technologies of 3D digital representation.

• Create and edit 3D models related to cultural contexts.

• Use software to create 3D environments and interactive user experiences.

• Apply 3D scanning and photogrammetry techniques for the digital documentation of cultural objects.

• Critically examine the use of 3D technologies in cultural heritage and their interaction with the public."

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

- Search, analysis and synthesis of data and information,

- ICT Use
- Autonomous work
- Working in an interdisciplinary environment
- Project design and management

3. COURSE CONTENT

The course focuses on the theory and practice of three-dimensional (3D) digital representation and interaction in cultural contexts. Students will become familiar with techniques and tools for creating 3D models, such as photogrammetry and 3D scanning, and will learn how to use virtual reality (VR) and augmented reality (AR) for representation and interaction in cultural applications. The course includes practical workshops and concludes with a 3D digital representation project.

Course Structure:

1. **Introduction to 3D Technologies and Digital Representation**
   - Theoretical principles of 3D models and applications in cultural contexts.
2. **Tools and Techniques for Creating 3D Models**
   - Software such as Blender, SketchUp, and Unity.
3. **Photogrammetry and 3D Scanning**
   - Introduction to photogrammetry and 3D scanning techniques for the representation of cultural objects.
4. **Creation of Digital Cultural Objects**
   - Tools and techniques for creating digital representations of cultural heritage objects.
5. **Virtual Reality (VR) and Interaction**
   - Introduction to creating interactive experiences with VR.
6. **Augmented Reality (AR) in Cultural Heritage**
   - AR applications for museums and cultural exhibitions.
7. **Management and Display of 3D Models**
   - Platforms for displaying and sharing 3D models (e.g., Sketchfab).
8. **Designing Virtual Environments for Cultural Applications**
   - Designing and developing 3D spaces for cultural projects.
9. **3D Reality and User Experience**
   - User interaction with digital cultural models.
10. **Applications of 3D Representation in Museums and Cultural Centers**
    - Case studies and examples from museums using 3D technologies.
11. **Ethical and Legal Issues in the Use of 3D Technologies**
    - Copyright and data management in digital representation.
12. **Critical Analysis of Digital 3D Projects**
    - Evaluating the use of 3D technologies in cultural heritage.
13. **Capstone Project: Digital Representation and Interaction in a Cultural Context**
    - Creation and presentation of a complete 3D project based on cultural data.

4. LEARNING & TEACHING METHODS - EVALUATION

<table>
<tr><td>TEACHING METHOD
Face to face, Distance learning, etc.</td><td>• Classroom lectures
• Workshops
• Active learning (hands-on learning) – Experiential learning
• Collaborative group learning</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)
Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>Use of ICT in teaching and communication with students
• PPT presentations
• Teaching material, announcements and communication through the eClass platform
• Student study of supplementary material related to course content
• Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>26</td></tr><tr><td>Workshops</td><td>13</td></tr></table></td></tr>
</table>

Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc. *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	Essay: 30 Weekly projects: 38 Independent study: 40 Written examination: 3 Total: 150
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Formative Weekly projects: 40% Essay (compulsory): 30% Final written examination: 30%

5. SUGGESTED BIBLIOGRAPHY

Addison, A. C., & Gaiani, M. (2000). *Virtualized architectural heritage: 3D reconstructions of ancient sites through digital technologies*. *Automation in Construction, 10*(3), 211-219.

Levy, T. E., & Smith, N. G. (Eds.). (2017). *Cyber-archaeology and grand narratives: Digital technology and deep-time perspectives on culture change in the Middle East*. Springer.

Remondino, F., & El-Hakim, S. (2006). *Image-based 3D modelling: A review*. *The Photogrammetric Record, 21*(115), 269-291.

Sabharwal, N. S. (2020). *3D scanning for cultural heritage preservation*. Routledge

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	XXXXXXXXX
Contact details:	XXXXXXXXX
Supervisors: (1)	YES
Evaluation methods: (2)	Weekly projects: 40% Essay (compulsory): 30% Final written examination: 30%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(184) Please write YES or NO

(185) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(186) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.

COURSE OUTLINE

DESIGN AND IMPLEMENTATION OF DIGITAL TEACHING SCENARIOS

1. GENERAL

SCHOOL	HUMANITIES		
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6		
COURSE CODE	ΕΕΨΕΦ11	**SEMESTER**	8TH
COURSE TITLE	DESIGN AND IMPLEMENTATION OF DIGITAL TEACHING SCENARIOS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITES:	NO
TEACHING & EXAMINATION LANGUAGE:	GREEK
COURSE OFFERED TO ERASMUS STUDENTS:	NO
COURSE URL:	https://eclass.duth.gr/courses/XXXXXX/

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

The aim of the instructors is, within a digital collaborative pedagogical environment, to cultivate the ability of their students to: study school education curricula, understand their epistemological principles, and discuss their position and functionality regarding the use of digital technologies.

1. Acquire the knowledge and develop the digital literacy skills necessary for their future careers as educators.
2. Specifically, be able to evaluate and utilize the information and tools provided by digital technologies in their teaching work by designing teaching scenarios in a collaborative digital environment for the subject areas covered in the Department.
3. Be capable of selecting teaching strategies that are compatible with the use of digital technologies and align with contemporary pedagogical and instructional theories.
4. Utilize the academic knowledge they have gained in other courses of their studies and transform it into teaching proposals.
5. Design and implement digital teaching scenarios using appropriate digital platforms and tools.
6. Present and coordinate in the workshop or in an authentic school environment the entirety or part of the scenario they created, gather data, assess their teaching, discuss with instructors and their fellow students, as well as reflect pedagogically.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information, ICT Use

Project design and management

Equity and Inclusion

Adaptation to new situations	*Respect for the natural environment*
Decision making	*Sustainability*
Autonomous work	*Demonstration of social, professional and moral responsibility and*
Teamwork	*sensitivity to gender issues*
Working in an international environment	*Critical thinking*
Working in an interdisciplinary environment	*Promoting free, creative and inductive reasoning*
Production of new research ideas	

- Search, analysis, and synthesis of data and information,
- Autonomous work
- Decision making
- Using the necessary technologies
- Independent work
- Teamwork
- Work in an interdisciplinary environment
- Respect for diversity and multiculturalism
- Demonstration of social, professional, and ethical responsibility and sensitivity to gender issues
- Practice of critical and self-critical thinking
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Introduction to contemporary theories of learning and teaching.
2. Analysis of the contribution of digital technology tools to the practical application of pedagogical theories.
3. Study of the institutional framework of education regarding the position and function of new technologies in teaching and learning.
4. Methodology for creating teaching scenarios: the phases of developing a teaching scenario are analyzed, and electronic platforms where digital teaching scenarios can be developed and uploaded are described.
5. Presentation of digital tools that students can use and online resources they can utilize in teaching literary subjects. Finally, examples of digital teaching scenarios are provided.
6. Presentation of platforms for developing digital teaching scenarios and an analysis of their capabilities.
7. Students are invited to create digital educational resources using tools provided by the digital teaching scenario platforms.
8. Presentation of modern forms of educational assessment in conjunction with the corresponding digital tools offered by the platforms.
9. Students are encouraged to search for and present annotated websites or platforms based on criteria. Workgroups are formed, and discussions are held with instructors regarding the topics of the scenarios they will undertake and the materials they will use.
10. They collaborate in the lab on the scenarios they have taken on with the help of the instructors, while preparing for their practicum and presentations in schools in the Rodopi region.
11. Presentations of teaching scenarios in the Computer Lab and their evaluation by students and the instructor.
12. Presentations of teaching scenarios in the Computer Lab and their evaluation by students and the instructor (duplicate entry).
13. The best student scenarios are uploaded to a specialized digital platform of the Laboratory of Technology, Research, and Applications in Education. The instructors provide a comprehensive presentation, and the course concludes with a reflective discussion.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	• Lectures • Active learning (hands-on learning) - Experiential learning • Collaborative learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)	Use of ICT in teaching and communication with students • PPT presentations • Teaching material, announcements and communication

<table>
<tr><td>Use of ICT in Teaching, in Laboratory Education, in Communication with students</td><td>through the eClass platform
• Student study of supplementary material related to course content
• Communication with students via email</td></tr>
<tr><td>TEACHING ORGANIZATION
The ways and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</td><td><table><tr><th>Activity</th><th>Workload/semester</th></tr><tr><td>Lectures</td><td>39</td></tr><tr><td>Essay</td><td>51</td></tr><tr><td>Study and analysis of bibliography</td><td>30</td></tr><tr><td>Written examination</td><td>30</td></tr><tr><td>Total</td><td>150</td></tr></table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others

Please indicate all relevant information about the course assessment and how students are informed</td><td>Formative

Essay (individual): 20%
Teaching scenarios (collaborative): 80%</td></tr>
</table>

5. SUGGESTED BIBLIOGRAPHY

E-class notes and selected bibliography posted on e-class
Research on digital databases and hubs

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	A. PALIKIDIS
Contact details:	apalikid@he.duth.gr
Supervisors: (2)	YES
Evaluation methods: (2)	Mid-term written examination: 20% Essay (compulsory): 30% Teaching scenario: 50%
Implementation Instructions: (3)	The written exams (both mid-term and final) will be conducted via the eClass platform on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam. The assignment must be submitted through eClass by a specified deadline.

(187) Please write YES or NO

(188) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(189) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.