COURSE OUTLINE
COMPUTER SCIENCE IN EDUCATION

1. GENERAL

SCHOOL	CLASSICS AND HUMANITIES
DEPARTMENT/UPS	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE
LEVEL OF STUDIES	UNDERGRADUATE – LEVEL 6

COURSE CODE	XXXXX		**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

- 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 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
	Study and analysis of bibliography		53
	Laboratory training/applications		13
	Development of lesson plans		55

	Examinations	3
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*	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.

(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.