Course Unit	Information and Communication Technologies in Education			Field of study	General Education		
Bachelor in	Basic Education			School	School of Education		
Academic Year	2023/2024	Year of study	1	Level	1-1	ECTS credits	3.0
Type	Semestral	Semester	1	Code	9853-531-1107-00-23		

Workload (hours)	81	Contact hours	T -	TP 27	PL -	TC -	S -	E -	OT 9	O -

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s): Ana Claudia Loureiro, Manuel Florindo Alves Meirinhos

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. Understand the role of digital education in the development of skills for the 21st century and digital citizenship.
2. Promote digital competence and increase innovation in education.
3. Explore emerging technologies and foresee their educational use.
4. Understand the pedagogical and methodological foundations for innovative integration and the successful and efficient use of emerging technologies in education.
5. Create innovative learning environments supported by digital technologies.
6. Intensify knowledge in a lifelong learning perspective.

Prerequisites

Before the course unit the learner is expected to be able to:
Not applicable

Course contents

Digital education. Emerging educational technologies. Pedagogical innovation with digital technologies.

Course contents (extended version)

1. Digital education
   - 21st. century skills
   - Digital competence for educators / teachers
   - Digital education and curriculum
2. Emerging educational technologies
   - Augmented, virtual and mixed reality
   - Computational thinking, programming, and robotics
   - Artificial intelligence and machine learning
3. Pedagogical innovation with digital technologies
   - Active learning methodologies
   - Innovative learning environments
   - Emerging trends in education

Recommended reading

1. Lucas, M. & Moreira, A. (2018). DigCompEdu: quadro europeu de competência digital para educadores. UA.
2. Ministério da Educação (2018). Orientações Curriculares para as TIC no 1. º CEB.
3. OECD (2021). OECD Digital Education Outlook 2021: Pushing the Frontiers with Artificial Intelligence, Blockchain and Robots, OECD Publishing.
4. Paniagua, A. & D. Istance (2018). Teachers as Designers of Learning Environments: The Importance of Innovative Pedagogies. Educational Research and Innovation, OECD Publishing.
5. Vuorikari, R. , Kluzer, S. & Punie, Y. (2022). DigComp 2. 2, The Digital Competence framework for citizens: with new examples of knowledge, skills and attitudes. Publications Office of European Union.

Teaching and learning methods

Methods are active, flexible and guiding, promoting student autonomy, collaboration, critical and creative thinking, discussion and reflection. Learning is project-based through hands-on inquiry activities, exploration and use of digital technologies to innovate and enhance learning.

Assessment methods

1. Continuous Assessment - (Regular, Student Worker) (Final)
   - Practical Work - 60% (Individual practical tasks, in classes, with analysis and critical reflection on the learning path.)
   - Projects - 40% (Group work: Development and presentation of a project with ICT in teaching.)
2. Exam Assessment - (Regular, Student Worker) (Supplementary, Special)
   - Final Written Exam - 100% (Final written exam)

Language of instruction

Portuguese, with additional English support for foreign students.

Electronic validation

Ana Claudia Loureiro, Manuel Florindo Alves Meirinhos	Maria Raquel Vaz Patrício	Maria Cristina do Espírito Santo Martins	Carlos Manuel Costa Teixeira
07-12-2023	07-12-2023	02-01-2024	11-02-2024