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| Course Unit | Didactics of Mathematics in Basic Education | | Field of study | Specific Didactics | |
| Bachelor in | Basic Education | | School | School of Education | |
| Academic Year | 2022/2023 | Year of study | 3 | Level | 1-3 |
| Type | Semestral | Semester | 2 | ECTS credits | 4.0 |
| Code | 9853-531-3201-00-22 | | | | |
| Workload (hours) | 108 | Contact hours | T - | TP 36 | 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) Maria Cristina do Espírito Santo Martins

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Identify aspects of student and teacher roles in teaching and learning mathematics.
2. Analyze the main curriculum guidelines in basic education.
3. Analyze, from a didactical point of view, mathematical tasks of different types and nature.
4. Select appropriate resources for teaching and learning mathematics in basic education.
5. Design teaching and learning sequences.

Prerequisites

Before the course unit the learner is expected to be able to:

1. Relate and use basic mathematical concepts.
2. Relate and use basic educational concepts.
3. Read and interpret mathematical information.

Course contents

1. Mathematics teaching and learning.
2. The mathematical tasks.
3. Resources for mathematics teaching and learning.
4. Planning.

Course contents (extended version)

1. Mathematics teaching and learning.
 - The student's role, the teacher's role.
 - Curriculum guidelines in basic education.
2. The mathematical tasks.
 - Type and nature of the tasks.
 - Exercises, problems, explorations, investigations, projects, games.
3. Resources for mathematics teaching and learning.
 - Manipulatives.
 - Technological materials.
 - Textbooks.
4. Planning.
 - Objectives, content, strategies, resources, evaluation.
 - Teaching and learning sequences.

Recommended reading

1. Grupo de Trabalho de Investigação. (Org.) (2017). A prática dos professores: planificação e discussão coletiva na sala de aula. Associação de Professores de Matemática.
2. Martins, C. (2011). O desenvolvimento profissional de professores do 1.º ciclo: contributo da participação num programa de formação contínua em matemática. Tese de doutoramento, Univ. de Lisboa.
3. National Council of Teachers of Mathematics. (2017). Princípios para a ação: assegurar a todos o sucesso em matemática. Associação de Professores de Matemática.
4. Pires, M. V. (2006). Os materiais curriculares na construção do conhecimento profissional do professor de matemática: três estudos de caso. Tese de doutoramento, Univ. de Santiago de Compostela.
5. Ponte, J. P. , & Serrazina, L. (2010). Didática da matemática do 1.º ciclo. Universidade Aberta.

Teaching and learning methods

1. Content exploration using, for example, explanation processes, texts discussions, writing reports or researching work.
2. Discussions of themes in small or large groups.
3. Individual or group work.
4. Resolution of tasks of different type and nature.

Assessment methods

1. Continuous assessment - (Regular, Student Worker) (Final)
 - Intermediate Written Test - 50% (Written summative test)
 - Work Discussion - 50% (Implementation and discussion of the proposed tasks or the individual or group works)
2. Assessment by examination - (Regular, Student Worker) (Supplementary, Special)
 - Final Written Exam - 100%

Language of instruction

Portuguese, with additional English support for foreign students.

Electronic validation

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| Maria Cristina do Espírito Santo Martins | Manuel Celestino Vara Pires | Elza da Conceição Mesquita | Carlos Manuel Costa Teixeira |
| 09-01-2023 | 09-01-2023 | 10-01-2023 | 20-01-2023 |