INSTITUTO POLITÉCNICO DE BRAGANÇA

Course Unit	Geometry			Field of study	Training in Teaching Area	
Bachelor in	Basic Education			School	School of Education	
Academic Year	2022/2023	Year of study	2	Level	1-2	ECTS credits	6.0
Type	Semestral	Semester	2	Code	9853-531-2203-00-22	

Workload (hours)	162	Contact hours	T	-	TP	54	PL	-	TC	-	S	-	E	-	OT	18	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 geometric concepts and procedures in diversified contexts.
2. Apply geometric concepts and procedures in diversified contexts.
3. Use different mathematical representations of a given geometric concept in an appropriate manner.
4. Work independently, researching, collecting, interpreting and presenting information.
5. Solve mathematical problems, communicating their own ideas and interpreting the other people's ideas.

Prerequisites

Before the course unit the learner is expected to be able to:
1. Read and interpret mathematical information.
2. Relate and use basic mathematical concepts.

Course contents

1. Historical development of geometry. 2. Geometric figures and solids. 3. Location and orientation in space. 4. Geometric transformations.

Course contents (extended version)

1. Historical development of geometry.
2. Geometric figures and solids.
   - Identification of geometric figures and solids.
   - Classification and characterization of geometric figures and solids.
3. Location and orientation in space.
4. Geometric transformations.
   - Concepts and properties.
   - Isometries.

Recommended reading

1. Breda, A. , Serrazina, L. , Menezes, L. , Sousa, H. , & Oliveira, P. (2011). Geometria e medida no ensino básico.DGIDC, Ministério da Educação.
2. Katz, V. (2004). The history of Mathematics: Brief version. Person Education.
3. Palhares, P. (Coord.) (2004). Elementos de matemática para professores do ensino básico. Lidel.
4. Palhares, P. , Gomes, A. , & Amaral, E. (Coords.) (2011). Complementos de matemática para professores do ensino básico. Lidel.
5. Veloso, E. (2012). Simetria e transformações geométricas. Associação de Professores de Matemática.

Teaching and learning methods

1. Content exploration using, for example, explanation processes, texts discussions, writing reports or researching works. 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 - 30% (Written summative test.)
   - Intermediate Written Test - 30% (Written summative test.)
   - Work Discussion - 40% (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

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