Information about the subject

Degree: Bachelor of Arts Degree in Primary School Education

Faculty: Faculty of Teacher Training and Education Sciences

Code: 1160101 **Name:** Fundamentals of Arithmetic and Measurement

Credits: 4,50 **ECTS Year:** 1 **Semester:** 2

Module: Teaching and learning of Mathematics

Subject Matter: Mathematics and its Didactics **Type:** Compulsory

Field of knowledge: Social and Legal Science

Department: Mathematics, Natural Sciences, and Social Sciences applied to Education

Type of learning: Classroom-based learning / Online

Languages in which it is taught: Spanish

Lecturer/-s:

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Module organization

Teaching and learning of Mathematics

Subject Matter	ECTS	Subject	ECTS	Year/semester
Mathematics and its Didactics	15,00	Fundamentals of Arithmetic and Measurement	4,50	1/2
		Fundamentals of Geometry and Information Processing	4,50	3/1
		Teaching of Mathematics	6,00	3/2

Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

R1   The student solves mathematical problems in the field of arithmetic and measurement.

R2   The student demonstrates properties related to basic arithmetic operations.

R3   The student actively participates in the proposed tasks in class.

R4   The student uses correct terminology and symbols specific to mathematics.

R5   The student maintains a high degree of grammatical and spelling accuracy.

R6   The student provides clear and detailed oral and written descriptions and presentations, developing concrete ideas and concluding with appropriate conclusions, while maintaining a high degree of grammatical and spelling accuracy.

Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB4	That students will be able to convey information, ideas, problems and solutions to both specialized and non-specialized audiences.				x

GENERAL		Weighting			
		1	2	3	4
CG1	Understand the curricular areas of Primary Education, the interdisciplinary relationship between them, the evaluation criteria, and the body of didactic knowledge around the respective teaching and learning procedures.	x			
CG2	Design, plan, and evaluate teaching and learning processes, both individually and in collaboration with other teachers and professionals from the school.	x			
CG6	Know the organization of primary education schools and the diversity of actions involved in their functioning. Perform tutoring and orientation with students and their families, addressing the singular educational needs of the students. Recognize that the exercise of the teaching function must go on improving and adapting to the scientific, pedagogical, and social changes throughout life.	x			
CG10	Reflect on classroom practices to innovate and improve teaching work. Acquire habits and skills for autonomous and coopoerative learning and promote it among students.		x		
CG11	Know and apply information and communication technologies in the classrooms. Selectively discern audiovisual information that contributes to learning, civic education, and cultural enrichment.		x		

SPECIFIC		Weighting			
		1	2	3	4

CE36	Acquire basic mathematical competencies (numerical, calculation, geometric, spatial representations, estimation, measurement, organization, and interpretation of information, etc.).			x
CE37	Know the school curriculum of mathematics.	x		
CE38	Analyze, reason, and communicate mathematical proposals.			x
CE39	Pose and solve problems linked to daily life.			x
CE40	Value the relationship between mathematics and sciences as one of the pillars of scientific thinking.	x		
CE51	Develop and evaluate curriculum content using appropriate didactic resources and promote the corresponding competencies in students.	x		

Assessment system for the acquisition of competencies and grading system

In-class teaching

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4, R5, R6	15,00%	Oral presentation of group and individual works: Self-assessment systems (oral, written, individual, in groups). Oral tests (individual, in groups, presentation of topics or works).
	0,00%	Monitoring of student work in non-face-to-face/distance sessions: Observation techniques, rubrics, checklists. Portfolios.
	0,00%	Active participation in theoretical-practical sessions, seminars, and tutorials: Attitude scale (to gather opinions, values, social and managerial skills, interaction behaviors).
R1, R2, R4, R5, R6	60,00%	Written tests: Objective tests with short and extended responses.
R1, R2, R3, R4, R5, R6	25,00%	Projects. Development and/or design works.

Observations

The exam will consist of a written test of between 5 and 8 questions with subsections, among which there will be exercises, problems and theoretical questions. In all cases, the answers must be duly justified.

The section "Projects. Development and/or design work" will be evaluated by carrying out practices or questionnaires, both group and individual.

It is an essential, but not sufficient, requirement to pass the subject to pass the exam.

It is an essential requirement to pass the subject that the student does not make more than 3 spelling mistakes in each written test (both assignments and practices as well as theoretical-practical exam).

Notes of the approved parts of one course will not be saved for another.

The delivery of the works and practices must be done in a timely manner within the periods established by the teacher of the subject.

SINGLE ASSESSMENT

Exceptionally, students who cannot participate in the continuous assessment system due to not attending at least 60% of classes may opt for this assessment system. In this case, they will be assessed as follows:

· Exam, whose percentage of the final grade will be 85% - Assessed learning outcomes: R1, R2, R4, R5, R6

· Oral presentation, whose percentage of the final grade will be 15% - Assessed learning outcomes: R1, R2, R3, R4, R5, R6

ARTIFICIAL INTELLIGENCE

Students may use AI for personal study of the subject.

Students may not use AI to complete assessable tasks, unless required for a specific activity and the teacher so indicates.

If AI is used in any of the activities, it must be stated in which part of the activity it has been used, which AI tool has been used and for what purpose

Online teaching

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R4, R5, R6	60,00%	Written tests: short-answer objective tests, developmental tests. Projects. Reports/Practical reports. Design work, development
R1, R2, R3, R4, R5, R6	15,00%	Exposición oral de trabajos grupales e individuales: sistemas de autoevaluación (oral, escrita, individual, en grupo). Pruebas orales (individual, en grupo, presentación de temas-trabajos)
	0,00%	Monitoring of student work in non-face-to-face/distance sessions: Observation techniques, rubrics, checklists. Portfolios.
	0,00%	Active participation in theoretical-practical sessions, seminars, and tutorials: Attitude scale (to gather opinions, values, social and managerial skills, interaction behaviors).
R1, R2, R3, R4, R5, R6	25,00%	Projects. Development and/or design works.

Observations

The exam will consist of a written test of between 5 and 8 questions with subsections, among which there will be exercises, problems and theoretical questions. In all cases, the answers must be duly justified.

The section "Projects. Development and/or design work" will be evaluated by carrying out practices or questionnaires, both group and individual.

It is an essential, but not sufficient, requirement to pass the subject to pass the exam.

It is an essential requirement to pass the subject that the student does not make more than 3 spelling mistakes in each written test (both assignments and practices as well as theoretical-practical exam).

Notes of the approved parts of one course will not be saved for another.

The delivery of the works and practices must be done in a timely manner within the periods established by the teacher of the subject.

ARTIFICIAL INTELLIGENCE

Students may use AI for personal study of the subject.

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CRITERIA FOR THE AWARDING OF HONOURS:

In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with 9 Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

M1   Participatory Master Class

M2   Case Study

M5   Seminar Work

M6   Problem-based Learning

M7   Cooperative/Collaborative Work

M9   Group and Individual Tutoring

M10   Individual Tutoring

M11   Participatory Master Class

M12   Case Study

M13   Seminar Work

M17   Problem-based Learning

M18   Cooperative/Collaborative Work

M19   Individual Tutoring

M20   Group and Individual Tutoring

IN-CLASS LEARNING

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Group Work Presentation M7, M9, M10	R1, R2, R3, R4, R5, R6	3,00	0,12
Theoretical Class M1	R1, R2, R3, R4	22,50	0,90
Practical Class M7, M9	R1, R2, R3, R4, R5, R6	12,00	0,48
Tutoring M9, M10	R1, R2, R4, R5	4,75	0,19
Evaluation M6	R1, R2, R4, R5, R6	2,75	0,11
TOTAL		**45,00**	**1,80**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Group work M9	R1, R2, R4, R5, R6	17,00	0,68
Individual work M10	R1, R2, R4, R5, R6	50,50	2,02
TOTAL		**67,50**	**2,70**

ON-LINE LEARNING

SYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theoretical class (e-learning mode) M11	R1, R2, R3, R4	22,00	0,88
Practical class (e-learning mode) M18, M20	R1, R2, R3, R4, R5, R6	12,00	0,48
Individual tutoring (e-learning mode) M19	R1, R2, R4, R5	3,00	0,12
Evaluation (e-learning mode) M17	R1, R2, R4, R5, R6	4,00	0,16
TOTAL		**41,00**	**1,64**

ASYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Individual work Activities (e-learning mode) M19	R1, R2, R4, R5, R6	56,50	2,26
Group Work (e-learning mode) M18	R1, R2, R4, R5	9,75	0,39
Discussion Forums (e-learning mode) M18, M20	R1, R2, R3, R4, R5, R6	0,25	0,01
Asynchronous Tutoring (e-learning mode) M19, M20	R1, R2, R4, R5, R6	1,00	0,04
Theoretical-Practical Class (distance mode) M11	R1, R2, R3, R4, R5, R6	4,00	0,16
TOTAL		**71,50**	**2,86**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
1. ELEMENTARY SET THEORY	Basics concepts: definitions and properties. Operations an relationships between sets.
2. SET CONSTRUCTION OF NATURAL NUMBERS	Definition of operations. Properties of operations. Number systems.
3. RELATIONSHIPS OF DIVISIBILITY ON NATURAL NUMBERS. FUNDAMENTAL THEOREM.	Multiples and factors. Primes and composite numbers. Highest common factor and lowest common
4. INTEGER NUMBERS	Definition and operations. Hierarchy of operations.
5. RATIONAL NUMBERS	Definition and operations. Decimal expressions and generating fractions.
6. INTRODUCTION TO MAGNITUDES AND TO MEASUREMENT	Proportionality and percentages. International System of Measurement.

Temporary organization of learning:

Block of content	Number of sessions	Hours
1. ELEMENTARY SET THEORY	4,00	8,00
2. SET CONSTRUCTION OF NATURAL NUMBERS	4,00	8,00
3. RELATIONSHIPS OF DIVISIBILITY ON NATURAL NUMBERS. FUNDAMENTAL THEOREM.	5,00	10,00
4. INTEGER NUMBERS	1,00	2,00
5. RATIONAL NUMBERS	5,00	10,00
6. INTRODUCTION TO MAGNITUDES AND TO MEASUREMENT	3,50	7,00

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