



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: -

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 cooperative 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



Year 2023/2024

1160101 - Fundamentals of Arithmetic and Measurement

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

The "Projects, Development and/or design work section", will be evaluated through group and individual practices and questionnaires.

To pass the subject it will be necessary to have at least a 5 in the exam and a 5 in the oral presentation.

In order to pass the subject, it is necessary to demonstrate an advanced level linguistic command in all oral and written productions, so that level C1 is achieved at the end of the Degree, which is required by the official report of the title. For this reason, each spelling error will be penalized in assignments and exams with 0.50 points. Three missing tildes will equal a misspelling.

Online teaching

Assessed learning outcomes	Granted percentage	Assessment method
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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.

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CRITERIA FOR THE AWARDING OF HONOURS:

As a sign of academic exceptionality, the Honour's Degree will be awarded to the student who, in addition to obtaining a maximum mark in the above criteria, is considered by the teacher to be worthy of such a distinction. And, in accordance with the general regulations which indicate that only one matriculation of honour can be awarded for every 20 students, not per fraction of 20, with the exception of the case of groups of less than 20 students in total, in which one matriculation can be awarded.



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 and 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



References

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- Cascallana, M. T. (1988). Iniciación a la matemática. Materiales y recursos didácticos. Ed. Aula XXI / Santillana.
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- Chauvel, D., Michel, V. (1989). Juegos de reglas para desarrollar la inteligencia. Nancea.
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- Ferrero, L. (1991). El juego y la matemática. La Muralla. Madrid.
- Gateño, C. (1961). Introducción al método Cuisenaire Gateño de los números en color para la enseñanza de la aritmética. Libro del maestro. Cuisenaire de España
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- Nortes Checa, A. (1993). Matemáticas y su didáctica. Tema-DM.
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Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

Situation 1: Teaching without limited capacity (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

Situation 2: Teaching with limited capacity (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

☒ Microsoft Teams

☐ Kaltura



Situation 3: Confinement due to a new State of Alarm.

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

☒ Microsoft Teams

☐ Kaltura

Explanation about the practical sessions:

They will be carried out individually or in groups through Teams or the UCVNet Platform.

Telematic attendance at practical sessions is compulsory. In case of not being able to attend the online sessions for a justified reason, it will be compulsory to present that justification and hold tutorials with the teacher to follow up on the practical sessions.



2. System for Assessing the Acquisition of the competences and Assessment System

ONSITE WORK

Regarding the Assessment Tools:

☒

The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.

☐

The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

Comments to the Assessment System:



ONLINE WORK

Regarding the Assessment Tools:

☐

The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.

☒

The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used
Examen	60%	35%	UCV Net. Microsoft Teams.
Prácticas	25%	45%	UCV Net. Microsoft Teams.
Exposición oral	15%	20%	UCV Net. Microsoft Teams.

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

Comments to the Assessment System:



1. The exam will consist of two parts: first, a close-ended questions test that will be worth 50-60% of the overall exam result and secondly a section comprising problems resolution that will be worth 40-50% of the overall exam result.
2. It is still essential to pass the exam, the worksheet elaboration and the oral presentation to pass the course.
3. The criteria regarding grammatical expression and spelling are maintained.