

**COURSE DATA****Data Subject**

Code	33627
Name	Teaching mathematics at nursery school
Cycle	Grade
ECTS Credits	6.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
1304 - Degree in Preschool Education	Faculty of Teacher Training	4	First term
1324 - Degree in Preschool Education (Ontinyent)	Faculty of Teacher Training	4	First term

Subject-matter

Degree	Subject-matter	Character
1304 - Degree in Preschool Education	22 - Teaching maths in preschool education	Obligatory
1324 - Degree in Preschool Education (Ontinyent)	22 - TEACHING MATHS IN PRESCHOOL EDUCATION	Obligatory

Coordination

Name	Department
DIAGO NEBOT, PASCUAL DAVID	85 - Mathematics Education
GARCIA MARQUES, MARIA EMILIA	85 - Mathematics Education

SUMMARY**English version is not available**

La asignatura de Didáctica de las matemáticas de educación infantil es una asignatura de carácter semestral, de 6 créditos que se imparte en el cuarto curso del Grado de Maestro/a de Educación Infantil.

La finalidad principal de la asignatura es promover la adquisición por los estudiantes de las competencias específicas señaladas en el Plan de Estudios de la materia, referidos a los contenidos propios de la didáctica de la matemática y así poder utilizarlo en las situaciones de enseñanza-aprendizaje de matemáticas en educación infantil. Así mismo, permitir ejercer la tarea del maestro de educación infantil en una sociedad que reclama una mejor formación en matemáticas de sus ciudadanos con un grado



suficiente de alfabetización matemática que les confiera cultura, libertad y capacidad crítica.

La asignatura se organiza alrededor de los bloques que normalmente se encuentran en las disposiciones curriculares de matemáticas en educación Infantil: pensamiento lógico, números y aritmética, geometría, la medida y la resolución de problemas.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

Para cursar adecuadamente la asignatura, es conveniente poseer los conocimientos de contenidos matemáticos correspondientes a la asignatura de Matemáticas para maestros.

COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)

1304 - Degree in Preschool Education

- Express oneself orally and in writing correctly and appropriately in the official languages of the autonomous region.
- Use information and communication technologies effectively as usual working tools.
- Analyse critically the most relevant issues in today's society that affect family and school education: social and educational impact of audiovisual languages and of screens; changes in gender and inter-gender relations; multiculturalism and interculturalism; discrimination and social inclusion and sustainable development. Also, carry out educational actions aimed at preparing active and democratic citizens, committed to equality, especially between men and women.
- Promote cooperative work and individual work and effort.
- Assume that teaching must be perfected and adapted to scientific, pedagogical and social changes throughout life.
- Know the processes of interaction and communication in the classroom.
- Recognise the identity of each educational stage and their cognitive, psychomotor, communicative, social and affective characteristics.
- Design, plan and evaluate teaching and learning classroom activities in multicultural and co-educational contexts.
- Know how to work as a team with other professionals within and outside the school to attend to each student, to plan the learning sequences and to organise work in the classroom and in the play space.



- Know and apply basic educational research methodologies and techniques and be able to design innovation projects identifying evaluation indicators.
- Understand that systematic observation is a basic tool that can be used to reflect on practice and reality, and to contribute to innovation and improvement in education.
- Identify and plan the resolution of educational situations that affect students with different abilities and different learning rates, and acquire resources to favour their integration.
- Know the mathematics curriculum in pre-primary education.
- Analyse mathematics didactically in the pre-primary mathematics curriculum.
- Be familiar with theories on the acquisition and development of mathematical learnings in pre-primary education.
- Know teaching strategies to develop competences in numerical representations and in spatial and geometric notions.
- Know teaching strategies to favour logical thinking in students in pre-primary education.
- Develop and evaluate mathematical contents in the pre-primary education curriculum by using appropriate teaching resources and promote the corresponding competences in students.
- Know and apply basic methodologies and techniques of educational research to teaching mathematics and be able to design innovation projects identifying evaluation indicators.
- Know the difficulties and errors in the process of teaching and learning mathematics in pre-primary education and the cognitive processes involved.
- Know teaching interventions that take into account the difficulties and errors in learning mathematics in pre-primary education.
- Analyse ICT as a teaching resource for mathematics in pre-primary education.
- Know and implement innovative experiences for teaching mathematics in pre-primary education.

1324 - Degree in Preschool Education (Ontinyent)

- Express oneself orally and in writing correctly and appropriately in the official languages of the autonomous region.
- Use information and communication technologies effectively as usual working tools.
- Analyse critically the most relevant issues in today's society that affect family and school education: social and educational impact of audiovisual languages and of screens; changes in gender and inter-gender relations; multiculturalism and interculturalism; discrimination and social inclusion and sustainable development. Also, carry out educational actions aimed at preparing active and democratic citizens, committed to equality, especially between men and women.
- Promote cooperative work and individual work and effort.
- Assume that teaching must be perfected and adapted to scientific, pedagogical and social changes throughout life.



- Know the processes of interaction and communication in the classroom.
- Recognise the identity of each educational stage and their cognitive, psychomotor, communicative, social and affective characteristics.
- Design, plan and evaluate teaching and learning classroom activities in multicultural and co-educational contexts.
- Know how to work as a team with other professionals within and outside the school to attend to each student, to plan the learning sequences and to organise work in the classroom and in the play space.
- Know and apply basic educational research methodologies and techniques and be able to design innovation projects identifying evaluation indicators.
- Understand that systematic observation is a basic tool that can be used to reflect on practice and reality, and to contribute to innovation and improvement in education.
- Identify and plan the resolution of educational situations that affect students with different abilities and different learning rates, and acquire resources to favour their integration.
- Know the mathematics curriculum in pre-primary education.
- Analyse mathematics didactically in the pre-primary mathematics curriculum.
- Be familiar with theories on the acquisition and development of mathematical learnings in pre-primary education.
- Know teaching strategies to develop competences in numerical representations and in spatial and geometric notions.
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LEARNING OUTCOMES (RD 1393/2007) // NO CONTENT (RD 822/2021)

English version is not available



DESCRIPTION OF CONTENTS

1. Development of basic numerical concepts

- Numerical uses and contexts
- Acquisition and elaboration of the numerical sequence
- Counting Principles
- Counting errors

2. Teaching and learning of the decimal number system

- Fundamental concepts
- Models for teaching the decimal number system
- Errors and obstacles in learning the decimal number system

3. Elementary arithmetic operations with natural numbers

- Count-based strategies prior to algorithms
- The role of models in the transition to algorithms
- Teaching and learning of standard algorithms
- Modeling of algorithms with manipulative materials

4. Introduction to problem-solving

- Semantic categorization of word problems of one stage
- Computational thinking
- Modelling in the infant classroom

5. Algebraic sense

- Development of logical concepts and skills: discrimination, classification, ordering, relation, etc.
- Patterns and series

6. Geometric and spatial thinking

- Spatial and perceptual skills
- Errors in tasks involving spatial skills
- Van Hiele model for the acquisition of geometric thinking
- Plane figures and three-dimensional geometric bodies
- Difficulties in learning geometry in the infant classroom

**7. Approach to measurement**

- The activity of measuring. Perception of magnitudes through comparison
- Basic magnitudes: length, capacity, weight and time
- Difficulties associated with the measure

8. Approach to data analysis and probability

- The production of statistical sense from the context
- Collection and representation of data
- Starting data interpretation
- Basic notions of probability

WORKLOAD

ACTIVITY	Hours	% To be attended
Theoretical and practical classes	60,00	100
Study and independent work	90,00	0
TOTAL	150,00	

TEACHING METHODOLOGY**English version is not available****EVALUATION****English version is not available****REFERENCES****Basic**

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- Sarama, J., y Clements, D. H. (2009). Early childhood mathematics education research: Learning trajectories for young children. Routledge
- Van de Walle, J. A., Karp, K. S., y Bay-William, J. M. (2019). Elementary and Middle School Mathematics: Teaching Developmentally (10th ed.). Pearson Education.