



DETAILS OF THE SUBJECT

Title (of the subject): DESARROLLO DEL PENSAMIENTO MATEMÁTICO

Code: 100757

Degree/Master: GRADO DE EDUCACIÓN INFANTIL

Year: 1

Name of the module to which it belongs: APRENDIZAJE DE LAS CIENCIAS DE LA NATURALEZA, DE LAS CIENCIAS SOCIALES Y DE LAS MATEMÁTICAS

Field: DESARROLLO DEL PENSAMIENTO MATEMÁTICO

Character: OBLIGATORIA

Duration: FIRST TERM

ECTS Credits: 6

Classroom hours: 60

Face-to-face classroom percentage: 40%

Non-contact hours: 90

Online platform: moodle

TEACHER INFORMATION

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Specifics of the subject

REQUIREMENTS AND RECOMMENDATIONS

Prerequisites established in the study plan

There are no previous requisites.

Recommendations

It is strongly recommended to attend classes and actively participate in.
It is advisable that students have at least a B-1 level in English (no certification required).

SKILLS

CB1	Students have demonstrated knowledge and understanding in a field of study that builds upon their general secondary education, and is typically at a level that, whilst supported by advanced textbooks, includes some aspects that will be informed by knowledge of the forefront of their field of study.
CB2	Students can apply their knowledge and understanding in a manner that indicates a professional approach to their work or vocation, and have competences typically demonstrated through devising and sustaining arguments and solving problems within their field of study.
CB4	Students can communicate information, ideas, problems and solutions to specialist and non-specialist audiences.
CE1	Knowledge of the objectives, curriculum content and assessment criteria in early childhood education.
CE11	Reflect on classroom practices to innovate and improve teaching. Acquire habits and skills for independent and cooperative learning and promote them in students.
CM8.1	Knowledge of the scientific, mathematical and technological foundations of the curriculum at this stage as well as theories on the acquisition and development of the relevant subject areas.
CM8.2	Knowledge of teaching strategies for developing numerical representations and spatial, geometric and logical notions.
CM8.3	Understand mathematics as sociocultural knowledge.

OBJECTIVES

1. To realize of the importance of mathematical learning as an essential part for the overall people development.
2. To know the mathematical concepts that integrate the early childhood curriculum.
3. To learn the theoretical foundations of the elementary mathematics.
4. To develop professional skills that allow a close connection between mathematical knowledge and its didactic.
5. To understand and manipulate specific mathematical teaching materials in early childhood education.

CONTENT

1. Theory contents

The course is divided into five sections or modules according to its main topics. The first one is devoted to foundation aspects of mathematics teaching and the remaining ones are devoted to the main mathematical topics and their didactic.

Section 1: Foundations in early childhood mathematics education.

Section 2: Development of children logical mathematical reasoning.

Section 3: Number in early childhood education.

Section 4: Development of children geometrical thinking.

Section 5: Magnitudes and measures in early childhood education.

2. Practical contents

1. Practices with manipulatives used for teaching mathematics in early years.
2. Planning a teaching class (project).

METHODOLOGY

General clarifications on the methodology. (optional)

The Content And Language Integrated Learning (CLIL) methodology will be used to enable a "natural" environment for both content and language learning, and to acquire fluency and specific vocabulary throughout the course. Students will be asked to actively participate in class (and virtual forum) and group-work based learning will be mainly used.

All the materials will be provided in English, including exam, and other assessment instruments. Explanations will be led in English as well. Within CLIL methodology Spanish language will be used in order to clarify and reach the objectives, whenever it is required. Student participation may be in both English and Spanish (although, English will be appreciated).

Methodological adaptations for part-time students and students with disabilities and special educational needs

Part-time students must put in contact with the teacher so as to reach an agreement about the specific development of the subject and the due dates of the activities to be carried out.

Face-to-face activities

Activity	Large group	Medium group	Total
<i>Assessment activities</i>	4	-	4
<i>Group work (cooperative)</i>	4	3	7
<i>Lectures</i>	28	-	28
<i>Text analysis</i>	3	-	3
<i>Tutorials</i>	2	-	2
<i>Workshop</i>	4	12	16
Total hours:	45	15	60

Not on-site activities

Actividad	Total
<i>Bibliographic consultations</i>	8
<i>Exercises</i>	20
<i>Finding information</i>	8
<i>Group work</i>	12
<i>Problems</i>	12
<i>Self-study</i>	30
Total hours:	90

WORK MATERIALS FOR STUDENTS

Internship notebook
 Dossier
 Exercises and problems

Clarifications:

Materials will be provided through moodle.

EVALUATION

Skills	Tools		
	Assignments and projects	Final exam	Seminars
CB1		X	X
CB2	X	X	
CB4		X	
CE1	X	X	
CE11	X		X
CM8.1	X	X	
CM8.2	X	X	
CM8.3	X		
Total (100%)	10%	60%	30%
Minimum grade.(*)	5	5	5

(*) Minimum grade necessary to pass the subject

¿Valora la asistencia?: No

General clarifications on instruments for evaluation:

Partial qualifications will be kept until the end of the current academic period.

The practices (second column in the table above) and project (second column in the table above) are of compulsory attendance for all the students. Students with a justification absence of more than the 20% of the practices will be evaluated of the practices during the final exam.

A minimum grade of 5 is required in all the instruments specified (final examen, practices and project) so as to pass the subject. Otherwise, the student will be graded with the maximum of the failed part.

Clarifications on the methodology for part-time students and students with disabilities and special educational needs:

Part-time students will be provided with specific learning conditions. Contact the professor. Nevertheless, they must pass every of the assessment instrument.

Qualifying criteria for obtaining honors: *A criterio del profesorado, siempre y cuando se cumpla los requisitos reseñados en el reglamento*

¿Hay exámenes/pruebas parciales?: No

BIBLIOGRAPHY

1. Basic Bibliography:

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Canals, M.A. (1981). La matemática en el parvulario. Madrid: Nuestra Cultura.

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Canals, M.A. (2009). Superficies, volúmenes y líneas. (Colección "Los dossiers de Maria Antònia Canals", 105). Associació de Mestres Rosa Sensat. ISBN: 9788492748129

Canals, M.A. (2009). Transformaciones Geométricas. (Colección "Los dossiers de Maria Antònia Canals", 106).

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Coriat, M. (2009). Educación matemática infantil. Granada: Universidad de Granada.

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Hughes, M. (1987). Los niños y los números. Las dificultades en el aprendizaje de las matemáticas. Madrid: Planeta.

Haylock, D. y Cockburn, A. (2013). Understanding Mathematics for Young Children. London: Sage Publications Ltd.

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Piaget, J.(1976). Génesis de las estructuras lógicas elementales. Clasificaciones y seriaciones. Buenos Aires: Guadalupe.

Ruesga, M. P. (2004). Las matemáticas a través del juego. Aplicaciones prácticas para el aula de infantil. Burgos: Universidad de Burgos.

Ruesga, M. P. (2004). El inicio del razonamiento en la infancia. Burgos: Universidad de Burgos.

2. Further reading:

Cross, C. T., Woods, T. A., & Schweingruber, H. (2009). Mathematics Learning in Early Childhood: Paths Toward Excellence and Equity. Washinton, DC: The National Academies Press. Recuperado a partir de http://www.nap.edu/download.php?record_id=12519

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Martínez Montero, J. y Sánchez Cortés, C. (2012). Desarrollo y mejora de la inteligencia matemática en Educación Infantil. Madrid : Wolters Kluwer

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Resnick, L. B. y Ford, W. W. (1990). La enseñanza de las matemáticas y sus fundamentos psicológicos. Madrid: Paidós- MEC.

Rodríguez, M. M. (2013). Cuentos para aprender y enseñar matemáticas: en educación infantil. Narcea Ediciones.

COORDINATION CRITERIA

- Delivery date job
- Jobs valid for various subjects

Clarifications:

- Delivery date job
- Jobs valid for various subjects

SCHEDULE

Period	Activity					
	Assessment activities	Group work (cooperative)	Lectures	Text analysis	Tutorials	Workshop
1# Fortnight	0	0	3	0	0	2
2# Fortnight	0	0	4	0	0	2
3# Fortnight	0	0	3	1	0	2
4# Fortnight	0	0	4	0	0	2
5# Fortnight	0	2	3	2	0	2
6# Fortnight	0	2	4	0	1	2
7# Fortnight	0	3	4	0	1	2
8# Fortnight	4	0	3	0	0	2
Total hours:	4	7	28	3	2	16