

**Mathematics on the early childhood Education
curriculum**

Code: 101986
ECTS Credits: 4

2025/2026

Degree	Type	Year
Early Childhood Education	OB	3

Contact

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Teachers

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Teaching groups languages

You can view this information at the [end](#) of this document.

Prerequisites

Despite not being any official prerequisites to enrol this course, it is strongly recommendable that students had already passed the annual subject of first course:

- Personality development

Objectives and Contextualisation

This course is designed to be taken once students have completed all basic training.

It focuses on specific didactic methods and is taught simultaneously with other specific didactic methods. It develops knowledge of the mathematics curriculum for early childhood education, integrating the general curriculum framework into the two blocks of specific mathematical knowledge covered in the course: logic and numbers. The first block of general content is logic or relationships and change in the 0-6 stage. The second block of general content then develops towards numbering and calculation, with special emphasis on the 3-6 stage.

The natural continuation of this subject is the fourth-year subject: 'Mathematical practice in the early childhood classroom'. Students who have passed the two compulsory subjects on mathematics teaching have the option of taking the optative subject 'Mathematical games and activities in early childhood education' in the last semester of the degree programme.

Objectives:

- 1.- To learn about the fundamental features of the curriculum for children aged 0-6, with an emphasis on mathematical aspects.
- 2.- To learn about the mathematical content of the curriculum for ages 0 to 3 and 3 to 6: logic and numbers.
- 3.- To learn about the ways of organising mathematical work for ages 0 to 6.
- 4.- To design mathematical learning situations for children aged 0 to 3.

Competences

- Consider classroom practical work to innovate and improve teaching.
- Demonstrate knowledge and understanding of the aims, curricular contents and criteria of evaluation of Infant Education
- Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.
- Promote and facilitate early infant learning, from a global and integrative perspective of different cognitive, emotional, psychomotor and developmental dimensions.
- Promoting experiences of initiation into information and communication technologies.
- Properly express oneself orally and in writing and master the use of different expression techniques.
- Understand teaching strategies to develop numerical representations and spatial geometric and logical development notions.,
- Understand the scientific, mathematical and technological bases of the curriculum at this stage as well as theories on the acquisition and development of the corresponding learning.

Learning Outcomes

1. Analyse a situation and identify its points for improvement.
2. Be able to communicate in writing by making a personal draft, having documented and referenced the texts consulted.
3. Be able to find and evaluate the relevance and adequacy of technologies for learning and knowledge for teaching and learning mathematics in kindergarten and nursery school.
4. Be able to locate and select mathematical content and learning objectives in the curriculum.
5. Be able to orally communicate synthesis of the most relevant aspects of a job using various technologies for learning and knowledge and in the required time.
6. Be able to select appropriate materials and situations for the nursery to promote learning and autonomy while respecting the uniqueness of each child.
7. Have the capacity to organize both personal and group work to perform the tasks required of the subject.
8. Know about professional support, physical and web-based resources.
9. Know of the structure, content, organization and utility of curricula of reference.
10. Propose new methods or well-founded alternative solutions.
11. Understand the diversity of materials and situations suitable for the development of mathematical thinking in kindergartens.
12. Understand the mathematical and didactic foundations of the curriculum for this stage regarding geometry and measurement.
13. Understand the mathematical and didactic foundations of the curriculum for this stage regarding logic and numbers.
14. Understand theories on the development of mathematical thinking in early childhood.

Content

This subject consists of three teaching units. The first of these units (Curriculum and mathematical content in Early Childhood Education) will be integrated into the other two thematic units.

1.- Curriculum and mathematical content in Early Childhood Education.

1.1. Official regulations (Royal Decree 95/2022, of 1 February, establishing the organisation and minimum teaching requirements for Early Childhood Education, and DECREE 21/2023, of 7 February, on the organisation of teaching in early childhood education).

1.2. Elements of the curriculum and the place of mathematics.

1.3. Psychological theoretical framework for teaching and learning mathematics. Constructivist approach.

1.4. Development of mathematical thinking in early childhood education and its continuity.

1.5. Organisation of mathematical content into five fundamental content blocks.

2.- Development of logical mathematical reasoning in early childhood (Relations and change)

2.1. Logic: Sets, qualities and attributes. Relations and change. Search for patterns.

2.2. Development of logical mathematical reasoning in early childhood: 0-3 and 3-6.

2.3. Materials for logical development in the 0-6 stage: specific non-specific material and other materials.

2.4. Learning situations in the 0-3 stage: treasure basket, heuristic play, experimentation trays, everyday situations, mealtimes, corners, etc.

2.5. Learning situations in the 3-6 stage: Dienes logic blocks, change machine, change train, etc.

3.- Development of Numbering and Calculation in early childhood

3.1. Learning trajectory of Numbering and Calculation in the 0-6 stage

3.2. Quantifiers, acoustic counting, resultative counting and the decimal positional system

3.3. Fundamentals of counting

3.4. Additive thinking (addition and subtraction) in early childhood education and introduction to multiplicative thinking

3.5. Materials for the development and construction of the concept of number

3.6. The blank page as a tool for mathematical representation

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Classroom activity, whole group and seminars	30	1.2	3, 5, 2, 6, 7, 4, 11, 14, 9, 8, 12, 13
Type: Supervised			
Individual or small group work	20	0.8	
Type: Autonomous			

Personal work	50	2	2, 14, 9, 8
Activity	Time needed		Methodology
Classroom activity	10	Lectures of the basic themes of the subject. It is done with the whole group. The session will usually finish with a brief explanation of the tasks to be done.	
Whole group			
Seminars	20	Workspaces in reduced groups (50% of the whole group) with the aim of deepening in the concepts and themes they have dealt with.	
Reduced groups			
Monitoring seminars	20	Workspaces in smaller groups where students present their work.	
Reduced groups			
Personal work	50	Students have to look for references on their own to deepen the concepts. Moreover, they have to finish all the activities proposed.	

Assessment

Continuous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Group Portfolio	15%	0	0	1, 3, 5, 2, 7, 14, 10
Group work	20%	0	0	1, 3, 5, 2, 6, 7, 4, 11, 14, 8, 10
Individual final written exam	50%	0	0	1, 2, 9, 12, 13, 10
Individual written reviews	15%	0	0	1, 2, 11, 14, 8, 13, 10

CONTINUOUS assessment will be carried out throughout the course using the activities listed below. As can be seen, the course assessment consists of 65% individual assessment tasks and 35% group assessment tasks.

Assessment activities	Percentage of mark out of total	Hours of dedication	Description
Individual final written exam	50%	2.5 hours in class	Written exam with questions related to the achievement of the course objectives (50% of the final grade). This individual written exam includes: content taught in the lectures, activities carried out in the seminars, questions

		+ Independent work	related to required readings, and content developed in group work.
			The final individual written test will be held at the end of all teaching units of the course: 11-12-2025 (group 61) and 09-12-2025 (group 62).
			This activity can be retaken. The retake date for the individual written test will be: 29-01-2026 (group 61) and 27-01-2026 (group 62).
Individual written reviews	15%	1 hour in class (30 minutes per review) + Independent work	<p>Students will write two individual reviews (each worth 7.5% of the final mark) at the end of the teaching units on logic (Unit 2) and numbering and calculation (Unit 3) respectively.</p> <p>In these individual written reviews, students must summarise, interpret and apply the knowledge derived from two or three compulsory readings in a practical classroom case study.</p> <p>The review of the logic block will take place on 16-10-2025 (group 61) and 14-10-2025 (group 62).</p> <p>The review of the numbering and calculation block will take place on 20-11-2025 (group 61) and 18-11-2025 (group 62).</p> <p>This activity cannot be retaken.</p>
Group work	20%	4 hours in class + Independent work	<p>In groups, students must design a mathematical proposal lasting 2 to 4 sessions and implement it in a classroom for children aged 0 to 3, analysing the mathematical content and processes developed by the nursery school pupils.</p> <p>Each group will submit a single written assignment (10%) and give an oral presentation at the follow-up seminar (10%).</p> <p>The oral presentation of the group work and the submission of the written assignment will take place on: 27/11/2025 (group 61) and 25/11/2025 (group 62).</p> <p>This activity cannot be retaken.</p>
Group Portfolio	15%	20 hours of classroom instruction + Independent work	<p>As a group, students will have to submit two portfolios corresponding to the deliverable activities previously presented in the course seminars. The first of these portfolios will correspond to the practical deliverable activities of unit 2 (logic). The second of these portfolios will correspond to the practical deliverable activities of unit 3 (numbering and calculation). Each portfolio will also include a theoretical-practical reflection on the activities carried out.</p> <p>The portfolio corresponding to unit 2 (logic) will be submitted on 23-10-2025 (group 61) and 21-10-2025 (group 62).</p>

The portfolio corresponding to unit 3 (numbering and calculation) must be submitted on 04-12-2025 (group 61) and 02-12-2025 (group 62).

This activity cannot be retaken.

RESIT EXAM:

Students who obtain a mark higher than 3.5 but lower than 5 in the individual final written exam may take a resit exam, which will account for 50% of the final mark for the subject, replacing the final exam mark. The maximum grade for the resit exam will always be 5. This resit exam will take place on 29/01/2026 (group 61) and 27/01/2026 (group 62).

CALCULATION OF THE COURSE GRADE:

The final grade for the course is the weighted average of the assessment activities outlined above, with the following conditions:

- In order to be eligible for the weighted average with the rest of the course grades, the student must have obtained a minimum of 5 in the final exam or the resit exam. If the student does not obtain a minimum of 5 in the final exam or the resit exam, they will not pass the course and the final grade for the subject will be a 3.
- Late submission of assessment activities will result in a 0 in the assessment of those activities.
- Failure to attend individual written reviews will result in a mark of 0 for those reviews.
- In order for students to be assessed, they must submit at least 75% of the assessable assignments (in addition to taking and passing the final exam or resit exam with a grade of 5). If students do not submit at least 75% of the assessable assignments, they will be considered "unassessed".
- Assessment activities cannot be retaken under any circumstances, except for the individual final written test.
- Even if the student passes the final test or, where applicable, the resit, if the weighted average of the marks does not reach 5, the student will fail the subject and the final mark on their record will be 3.
- Class attendance is compulsory: students must attend all classes in order to be assessed (a maximum of 20% of incidents in classes is allowed, both in large group classes and in seminars).

At the same time, students must take into account the following regulatory considerations regarding assessment:

- Calculators are not permitted in individual written tests, unless indicated by the teacher.
- With regard to the use of Artificial Intelligence, Model 2 - Restricted Use will be followed in this course: For this course, the use of Artificial Intelligence (AI) technologies is permitted exclusively in support tasks such as bibliographic or information searches and the correction of texts or translations. Students must clearly identify which parts have been generated using this technology, specify the tools used and include a critical reflection on how these have influenced the process and the final result of the activity. Failure to be transparent about the use of AI in this assessable activity will be considered academic dishonesty and may result in a partial or total penalty on the activity mark, or more severe penalties in serious cases.
- All assessment activities are compulsory for all students.

- The mark for a group assignment is not necessarily the individual mark for each of the students in that group.
- Students who are not physically present at the seminar sessions during the assessment activities for a block will receive a maximum mark of 5 for those activities.

To pass this course, students must demonstrate good overall communication skills, both oral and written, and a good command of the language of instruction specified in the course guide. All activities (individual and group) will therefore take into account linguistic accuracy, writing skills and formal aspects of presentation.

Students must be able to express themselves fluently and correctly and demonstrate a high level of comprehension of academic texts. Students must demonstrate competence equivalent to level 2 (equivalent to C2). Before submitting any evidence of learning, it is necessary to check that sources, notes, quotations and bibliographical references have been written correctly in accordance with APA 7 guidelines.

Total or partial plagiarism of one of the assessment activities and/or copying in an assessment test is direct grounds for failing the course. Copying or plagiarism of any type of assessment activity constitutes a crime and will be penalised with a grade of 0 for the course, with no possibility of retaking it, whether it is an individual or group assignment (in this case, all members of the group will receive a 0).

Assessment activities will be returned and graded within a maximum of 20 working days after submission.

UNIQUE ASSESSMENT:

Students who opt for the unique assessment must follow the course, attending classes regularly (a maximum of 20% absences is allowed, both in large group classes and seminars). They must also follow the instructions outlined in the previous section entitled 'Calculation of the course grade'. However, THEY WILL NOT SUBMIT THE MONITORING ASSESSMENT ACTIVITIES UNTIL THE DAY OF THE FINAL ASSESSMENT. Therefore, THEY WILL NOT RECEIVE individualised feedback on the monitoring assessment activities during the course. In any case, they will be able to access general feedback either during the feedback sessions for the whole class (on 18/12/2025 for group 61 and 16/12/2025 for group 62) or those that may be published on the virtual campus by the group.

- Individual final written exam (50% of the final mark). The individual written test will take place on the single assessment day: 11-12-2025 (group 61) and 09-12-2025 (group 62). This is a resitable activity. The resit dates will be: 29/01/2026 (group 61) and 27/01/2026 (group 62).
- Group work (20% of the final mark). The work will be done individually and will be submitted on the single assessment day: 11-12-2025 (group 61) and 09-12-2025 (group 62). This assessment activity cannot be retaken.
- Group portfolio (15% of the final mark). This will be done individually and must be submitted on the day of the single assessment: 11-12-2025 (group 61) and 09-12-2025 (group 62). This assessment activity cannot be retaken.
- Individual written reviews (15% of the final mark). Both reviews will be carried out on the day of the single assessment: 11-12-2025 (group 61) and 09-12-2025 (group 62). This assessment activity cannot be retaken.

ATTENTION RETAKERS:

THERE WILL BE NO SUMMARY ASSESSMENT for this subject. Therefore, those who enrol for the second time may choose between continuous assessment or single assessment. In both cases, the conditions regarding attendance that will apply to them are the same as for the rest of the students enrolled in the subject. Therefore, we recommend that students who are repeating the subject ensure that they are available to attend it regularly, if necessary, avoiding enrolling in other subjects from other courses that are taught on the same day at the same time.

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Software

No specific software is used.

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(SEM) Seminars	611	Catalan	first semester	morning-mixed
(SEM) Seminars	612	Catalan	first semester	morning-mixed
(SEM) Seminars	621	Catalan	first semester	afternoon
(SEM) Seminars	622	Catalan	first semester	afternoon
(TE) Theory	61	Catalan	first semester	morning-mixed
(TE) Theory	62	Catalan	first semester	afternoon