# Mathematics and its Teaching II
## Bachelor's degree in Primary Education – 3rd year (9 cr.)

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## BASIC COMPETENCES

1. Knowing the elementary mathematical contents associated to the five thematic clusters according to the curriculum: arithmetic, geometry, measurement, data analysis and probability.

2. Knowing the methodological strategies suitable for developing logical-mathematical thinking, numeration abilities and geometric reasoning.

3. Producing, selecting and evaluating curricular materials in order to promote mathematical learning of Primary School students through meaningful activities.

## CONTENTS

1. Arithmetic

    a. Types of numbers
    b. Divisibility: prime numbers and divisibility criteria
    c. Rational numbers and proportions
        i. Interpretations
        ii. Arithmetic operations and graphical interpretation
    d. Problem solving on divisibility and rational numbers
    e. Curriculum standards for numbers and operations.

2. Geometry

    a. Plane geometry: identification, classification and construction of plane figures. Angles and polygons. Locus of points.
    b. 3-dimensional geometry: identification and classification. Polyhedrons.
    c. Geometric Transformations: translations, symmetries and rotations.
    d. Problem solving.
    e. Manipulatives. The Van Hiele model for the learning and teaching of geometry.
    f. Conceptual and procedural misconceptions in geometry which are usual in Primary School.
    g. Curriculum standards for geometry.

3. Measurement

    a. Magnitudes: measure and systems of units.
    b. Proportionality: Thales' Theorem.
    c. Area of plane figures.
    d. Problem solving.
    e. Conceptual and procedural misconceptions in measure which are usual in Primary School.
    f. Curriculum standards for measurement.

4. Data analysis and probability
    a. Statistics: data collection, analysis of graphs.
    b. Chance and probability: intuitive approach.
    c. Problem solving.

d. Some errors and misconceptions which are usual in Primary School.
e. Curriculum standards for data analysis and probability.


**METHODOLOGY**

Visual Lectures, Group Tasks, Problem Solving Sessions, Individual Work, Tutorials.


**ASSESSMENT**

A) Continuous Assessment
Attendance and active participation required.

|  | Type | Percentage |
|---|---|---|
| **First midterm (*)** **(6 cr.)** | First Midterm Exam | 58% |
|  | Group Task | 10% |
| **Second midterm** **(3 cr.)** | Compulsory Text (Reading) | 10% |
|  | Group Task | 10% |
|  | Individual tasks and class participation | 12% |
| **Final mark (**)** |  | 100% |

B) Non-continuous Assessment

|  | Type | Percentage |
|---|---|---|
| **First midterm (*)** **(6 cr.)** | First Midterm Exam | 68% |
| **Second midterm** **(3 cr.)** | Second Midterm Exam | 32% |
| **Final mark** |  | 100% |

(*) Notice that the first midterm has two times as many credits as the second one.

(**) To pass the subject through continuous assessment, you have to get at least 4 out of 10 in the first Midterm Exam

Notice also that:

i) The student who passes just one of the midterms (either through continuous assessment or through exams) can choose, in the final exam, to take the whole subject or just the part they didn't pass.

ii) Every student has the right to sit the final exam, either they passed the midterms (for example, to increase their mark) or not.

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[In bold: basic bibliography]

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