68535 - Discipline content for Mathematics in the speciality subject of Mathematics at Secondary and VIth form level

Información del Plan Docente

Academic Year	2018/19
Subject	68535 - Discipline content for Mathematics in the speciality subject of Mathematics at Secondary and VIth form level
Faculty / School	107 - Facultad de Educación
Degree	357 - University Master's in Secondary School Teaching: Mathematics 415 -
ECTS	4.0
Year	XX
Semester	Indeterminate
Subject Type	Compulsory
Module	---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

The student, to pass this subject, must demonstrate the following results ...

1.- He/she must know and apply basic concepts of Mathematics with a global vision that allows its didactic treatment oriented to Secondary Education.

2.- He/she must identify the underlying Mathematics in different situations and contexts of daily life.

3.- He/she must review concepts and results of Mathematics from a historical perspective.

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

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4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

4.2.Learning tasks

4.3.Syllabus

Part 1: Global vision of the development of Mathematics from its beginnings to the present.

- 1.1 Prehistory. Papyri of Ahmes and Moscow.

- 1.2 Mathematics in ancient Egypt.

- 1.3 Greece. Archimedes, Euclid.

- 1.4 Mathematics in the Islamic world.

- 1.5 The Renaissance.

- 1.6 S. XVIII- Present.

Part 2: Vision in some detail of the development of projective geometry in the nineteenth century.

- 2.1 The extended plane. Double reason of four points.

- 2.2 Theorems of Menelaus, Ceva, Desargues and Pascal.

- 2.3 Projectivities and Pappus Theorem.

- 2.4 The circumference. Inversion. Polarity. Duality.

- 2.5 Conics (non-degenerate and degenerate). Chasles-Steiner theorem.

- 2.6 Analytical treatment of conics. Conic sheaves.

Part 3: Interactive geometry laboratory.

- 3.1 Interactive geometry with free software.

- 3.2 The geometry of the triangle.

- 3.3 Geometric transformations in the plane.

- 3.4 Inversion circle: applications.

- 3.5 Classic theorems in projective geometry.

4.4.Course planning and calendar

4.5.Bibliography and recommended resources