Course Syllabus

Course	Diversity in mathematics education		
Module	MODULE # 02: Competences in Math Education		
Degree	International Semester on Education		
Plan Code	904	**Course Code**	75042
Teaching period	Second semester	**Type**	Compulsory
Level	Degree	**Academic Year**	2020/21
ECTS	2,5 ECTS		
Language	English		
Lecturers	José María Marbán Prieto		
Department	Departmento de Didáctica de las Ciencias Experimentales, Sociales y de la Matemática (Department of Didactics of Experimental Sciences, Social Sciences and Mathematics)		
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1. General scope

The development of key competences, their validation and the provision of competence-oriented education, training and learning should be supported by establishing good practices for better support of educational staff in their tasks and improving their education, for updating assessment and validation methods and tools, and for introducing new and innovative forms of teaching and learning.

Key competences are those which all individuals need for personal fulfilment and development, employability, social inclusion, sustainable lifestyle, successful life in peaceful societies, health-conscious life management and active citizenship. They are developed in a lifelong learning perspective, from early childhood throughout adult life, and through formal, non-formal and informal learning in all contexts, including family, school, workplace, neighborhood and other communities.

The key competences are all considered equally important; each of them contributes to a successful life in society. Competences can be applied in many different contexts and in a variety of combinations. They overlap and interlock; aspects essential to one domain will support competence in another. Skills such as critical thinking, problem solving, teamwork, communication and negotiation skills, analytical skills, creativity, and intercultural skills are embedded throughout the key competences.

1.1 Context

Diversity must be considered both as a chance and as one of the main challenges in the field of mathematics, education for the 21st challenge and this has to be done within a context of good inclusivity practices in the mathematics classrooms.

1.2 Relation with other courses

This course is included in the “set of subjects” oriented by the European Council Recommendation on key competences for lifelong learning (2018). The courses developed in this semester are interlinked, and everyone is part of the integrated project that every student have to develop as a whole. In this sense, this course is related into the international semester as a key competence for the building to the European citizenship through this integrated strategy of initial or permanent teacher training for the primary and/or secondary school.

1.3 Prerequisites

Fluency in English is expected (B2 Level).

2. Competences

2.1 General

The course focuses on the mathematical competence with a special focus on the affective domain and the professional knowledge needed to teach mathematics. The course also integrates other competences with a special attention to the civil competence to “empower individuals to act as responsible, active citizens able to contribute to peaceful, tolerant, inclusive and secure societies”, as described by the European Framework of Key Competences for Lifelong Learning.

2.2 Specific

The course will promote those competences that are specific to become a competent math teacher able to design, manage and evaluate inclusive learning contexts.

3. Learning Outcomes

The course will prepare the students to be able to:

- Identify diversity factors present in a maths classroom that require special treatment.
- Establish relationships between affective, social and cognitive domains in the context of an inclusive mathematics education.
- Describe the main features of inclusive and interdisciplinary learning environments for the mathematics classroom.
- Select, analyse and evaluate teaching and learning maths resources with respect to their potential use to deal with diversity in the classroom.
- Design simple maths tasks and activities based on cooperative learning to address diversity enhancing mutual enrichment.
- Recognize and judge the main features of good innovative experiences in the framework of diversity and mathematics education.

4. Contents

- Diversity as a chance and a challenge for mathematics education.
- Didactical resources and tools for dealing with diversity within the maths classroom.
- Mathematical games and puzzles for inclusive mathematics education.

- The history of mathematics as a key for integration.
- Solving mathematics problems as an activity for everyone.
- The cooperative learning in mathematics in the context of diversity.
- Beliefs and attitudes: hidden variables in maths education.
- Gender and mathematics.
- New perspectives and challenges in maths educational research and innovation through the eyes of diversity.

5. Methodology

Active and personalized learning will be at the core of the methodological proposal for this course by means of a suitable combination of student-centred teaching methods and techniques such as PBL, dialogic learning and case study.

6. Student dedication to the course

Classroom activities	Hours	Outside the classroom	Hours
Lectures	10	Autonomous work.	37,5
Practice sessions	15		
Total in the classroom	**25**	Total outside the classroom	**37,5**

7. Grading criteria

Evaluation will be understood in a diagnostic, formative and summative way by using self-evaluation scales, systematic observation sheets, rubrics and an individualized learning portfolio.

Evaluation	Percentage	Comments
Participation in class dynamics	25	Attendance is compulsory.
Practice activities	50	
Contribution to the integrated project	25	

Spanish Scale		ECTS Scale	Definition
9.0-10.0	Matrícula de honor	A+	Excellent with Honours
9.0-10.0	Sobresaliente	A	Excellent
8.0-8.9	Notable	B	VeryGood
7.0-7.9	Notable	C	Good
6.0-6.9	Aprobado	D	Satisfactory
5.0-5.9	Aprobado	E	Sufficient
0.0-4.9	Suspenso	FX/F	Fail

8. Basic references

Bishop, A., Tan, H., & Barkatsas, T. N. (Eds.). (2014). *Diversity in Mathematics Education: Towards Inclusive Practices*. Springer.

Robbins, B. (2000). *Inclusive Mathematics 5-11*. Bloomsbury Publishing.

Boon, R., & Spencer, V. (2010). *Best practices for the inclusive classroom: Scientifically based strategies for success*. Sourcebooks, Inc..

Fennema, E., & Leder, G. C. (1990). *Mathematics and gender*. Teachers College Press, PO Box 20, Wiliston, VT 05495-0020.

Gargiulo, R. M., & Metcalf, D. (2017). *Teaching in today's inclusive classrooms: A universal design for learning approach*. Nelson Education.

Grootenboer, P., & Marshman, M. (2016). *Mathematics, Affect and Learning*. Springer.

Zaslavsky, C. (1996). *Multicultural Math Classroom: Bringing In the World*. Heinemann, 361 Hanover Street, Portsmouth, NH 03801-3912.

9. Final considerations

As said above, this semester is a cluster of training modules for initial or permanent teachers interested in introducing a complementary strategy of teaching within the core curriculum of primary and secondary schools. Therefore, the main purpose of the final project is to integrate all the courses' contents in a comprehensive way.