

SUBJECT TEACHING GUIDE

M1114 - Projects and Proposals for Curriculum Innovation in Mathematics

Master's Degree in Secondary Education Teacher Training

Academic year 2022-2023

1. IDENTIFYING DATA					
Degree	Master's Degree in Secondary Education Teacher Training			Type and Year	Optional. Year 1
Faculty	School of Teacher Training				
Discipline	Subject Area: Innovation in Teaching and Introduction to Educational Research Specific Module in the Speciality of Mathematics				
Course unit title and code	M1114 - Projects and Proposals for Curriculum Innovation in Mathematics				
Number of ECTS credits allocated	3	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. MATEMATICAS, ESTADISTICA Y COMPUTACION				
Name of lecturer	JOSE MANUEL DIEGO MANTECON				
E-mail	josemanuel.diego@unican.es				
Office	Facultad de Ciencias. Planta: + 0. DESPACHO JOSE MANUEL DIEGO MANTECON (0060)				
Other lecturers	OSCAR ARCERA LOPEZ				

3.1 LEARNING OUTCOMES

- Analyze and design innovative proposals and projects about the secondary mathematics syllabus.

4. OBJECTIVES

Learn about the role of the mathematics teachers unions on mathematics innovation

Design innovative teaching proposals to teach the secondary mathematics syllabus, regarding, in particular, the STEAM methodology.

Providing a context for the mathematics innovation in the secondary education by analyzing teaching proposals and projects from different parts of the mathematics syllabus and their contribution to the development of the basic skills , regarding, in particular, the STEAM methodology.

Describing quality guidelines to analyze maths activities or projects.

Learn about the different learning communities roles and some virtual learning platforms.

Learn about European programmes that promote a European and international dimension of the education through innovative projects.

6. COURSE ORGANIZATION

CONTENTS

1	Analyzing mathematics teaching units and projects
2	Describing and using criteria for designing and analyzing activities or didactic projects
3	Innovative teaching proposals and/or projects
4	To know and work on European programs.
5	The role of the mathematics teachers associations on mathematics innovation
6	Design of pedagogical projects
7	Activity and project implementation in the classroom and syllabus.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Design and Elaboration in pairs of the Activities proposed during the teaching of the subject	Work	No	Yes	60,00
Undertaken a Theoretical-Practical test	Others	No	Yes	40,00
TOTAL				100,00
Observations				
<p>ORTHOGRAPHY: It is understood that university students have assumed linguistic abilities in oral and written expression. Therefore, spelling (spelling, accentuation, and punctuation), and grammatical and lexical correction are essential and mandatory in the work and exams carried out as an essential condition to pass the subject.</p> <p>PLAGIARISM: Regarding the fraudulent performance (plagiarism) of the evaluation tests, the qualification will adjust to the provisions of article 54.1 of the Regulations of the evaluation processes at the University of Cantabria: 'The fraudulent performance of the tests or activities and evaluation will directly suppose the qualification of suspense '0' in the subject'.</p> <p>CITATION RULES: Finally, the Board of the Center approved that the Faculty assumed the APA STANDARDS as citation criteria for all academic papers. Although these standards have different editions, as an initial reference we attach the BUC link, hoping that it will be of help and reference for its development: http://web.unican.es/buc/recursos/guias-y-tutoriales/guia?g=28</p>				
Observations for part-time students				
Specific evaluation protocol through a written exam at the end of the course.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

- Diego-Mantecón, J. M., Haro, E., Blanco, T. F., & Romo-Vázquez, A. (2021). The chimera of the competency-based approach to teaching mathematics: a study of carpentry purchases for home projects. *Educational Studies in Mathematics*, 1-19.
- Ortiz-Laso, Z., & Diego-Mantecón, J. M. (2020). Strategies of Pre-Service Early Childhood Teachers for Solving Multi-Digit Division Problems. *Sustainability*, 12(23), 10217.
- Páginas web de Proyectos Europeos: KIKS; STEM for Youth, EduLarp, OpenSTEAMGroup, Fibonacci, PRIMAS, MoMaTrE, MILAGE, etc.
- Diego-Mantecón, J. M., Blanco, T. F., Ortiz-Laso, Z., & Lavicza, Z. (2021). Proyectos STEAM con formato KIKS para el desarrollo de competencias clave. *Comunicar: Revista Científica de Comunicación y Educación*, 29(66), 33-43.
- Geometría dinámica, Colectivo Intergeo, Coordinador: Tomás Recio. Colección Lemniscata nº 7, Agapema-Anaya 2009
- Gutiérrez A. (2005). BDMat: Base de datos de Matemáticas. Consejería de Educación de Cantabria
- Diversas páginas web: PROCOMUN, GeoGebra Materials, FESPM, Divulgamat, etc.
- Cuadernos de Educación de la Consejería de Educación
- Revistas de didáctica y enseñanza-aprendizaje de las Matemáticas
- Diego-Mantecón, J. M., Ortiz-Laso, Z., & Blanco, T. F. (2022). Implementing STEM projects through the EDP to learn mathematics: the importance of teachers' specialization. In *Mathematics Education in the Age of Artificial Intelligence* (pp. 399-415). Springer, Cham.

