SUBJECT TEACHING GUIDE

368 - Algebraic Theory of Numbers

Master's Degree in Mathematics and Computing

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Master's Degree in Mathematics and Computing			Type and Year	Optional. Year 1
Faculty	Faculty of Sciences				
Discipline					
Course unit title and code	368 - Algebraic Theory of Numbers				
Number of ECTS credits allocated	3	Term		Semester based (2)	
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. MATEMATICAS, ESTADISTICA Y COMPUTACION
Name of lecturer	JESUS JAVIER JIMENEZ GARRIDO
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Other lecturers	

3.1 LEARNING OUTCOMES
- Know some basic tools for solving Diophantine equations.
- Determining the rings of integers from a field of numbers
- Understand the notions of factorization and units in rings of integers.
- Know the behavior of ideals in a ring of integers.

4. OBJECTIVES

Relate quadratic and cyclotomic extensions with various Diophantine equations.
Recognize rings of algebraic integers.
Study the algebraic properties of rings of integers.

6. COURSE ORGANIZATION

CONTENTS	
1	Introduction to the Diophantine Equations.
2	Fermat's last theorem. Origins and some particular cases.
3	Rings of quadratic and cyclotomic integers.
4	Rings of algebraic integers. Factorization, units.
5	Evaluation exercises and final work

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Evaluation exercises and final project	Others	Yes	Yes	100,00
TOTAL				100,00

Observations
Observations for part-time students
Part-time students must carry out a project on one of the topics of the subject.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC
H. Cohen. A course in computational algebraic number theory . Graduate texts in mathematics ; 138, Springer, 1993
I. Stewart, D. Tall. Algebraic number theory. Chapman and Hall, 1987.