Program	Type of studies (cycle)	Third cycle
	Name of the program	Doctoral Studies in Mathematical and Computer Science

Course

Course title	**Finite Fields and Applications**

Course code	Semester	Course status	ECTS credits	Contact hours
PMAT 615	II	elective	10	30

Aims and intended learning outcomes	The primary objective of the course is for students to acquire knowledge and skills in selected advanced areas of finite field theory and their applications. The course content will not be strictly predefined but rather tailored to the students' needs and interests. Upon successful completion of the course, the student should possess a deep understanding of the theory within the studied area and the ability to apply this knowledge in various contexts—ranging from algebra and number theory to other fields of mathematics and the sciences. Furthermore, the student should develop the capacity to conduct independent research in the subject area and draw scientific conclusions related to it.

Course content/topics

- Structure of finite fields
- Polynomials over finite fields
- Equations over finite fields
- Polynomial factorization
- Exponential sums
- Permutation polynomials

LITERATURE

[1] Lidl, Niederreiter, Finite Fields and Their Applications, Encyclopedia of mathematics, Vol 20

[2] Finite Fields, D. Jungnickel, Wissenschaftsverlag, 1993

[3] Handbook of Finite Fields, Gary L. Mullen, Daniel Panario,Chapman and Hall/CRC, 2013.

Grading

	Criterion	Points	Cut-off points
1.	Written assignment	30	15
2.	Project	30	15
3	Final exam	40	25
	Total	100	55