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

Course

Course title	**Theory of Semigroups**

Course code	Semester	Course status	ECTS credits	Contact hours
PMAT 696	II	Optional	10	30

Aims and intended learning outcomes	The aim is to introduce students with the fundamentals of the theory of semigroups and its applications in algebraic graph theory, in particular with graphs associated to semigroups.

Course content/topics

- Green's relations
- (0-)simple semigroups. Regular semigroups
- Inverse semigroups
- Graphs defined on semigroups (Cayley graphs, power graphs etc.)

LITERATURE

[1] A. H. Clifford, G. B. Preston, The Algebraic Theory of Semigroups, Amer. Math. Soc., Providence, R.I, 1961.

[2] J. M. Howie, Fundamentals of Semigroup Theory, Oxford University Press, 1995.

[3] A. V. Kelarev, Graph Algebras and Automata, Marcel Dekker, 2003.

[4] U. Knauer, K. Knauer, Algebraic Graph Theory: Morphisms, Monoids and Matrices, De Gruyter, 2019.

Grading

	Criterion	Points	Cut-off points
1.	Written assignment		
2.	Project	40	20
3	Final exam	60	35
	Total	100	55