Study programme	Level of study (cycle)	Third cycle – doctoral studies
	Study programme title	Doctoral programme in mathematical and computer sciences

COURSE

Course title	**Generalised functions**

Course code	Semester	Course status	ECTS credits	Contact hours
PMAT 625	II	Elective	10	30

Course aims and learning outcomes	The course aims to give students the fundamentals of the theory of generalised functions needed to read and understand research papers in this field.

Course content

- Dirac delta function
- Space of test functions and space of distributions
- Operations on distributions
- Even, odd and positive distributions
- Convergence of sequences and series of distributions
- Periodic distributions
- Relationship between distributions in physics and in mathematics
- Derivatives of distributions and the distributional derivative of a function
- Derivative of the product of a smooth function and a distribution
- Distributions and differential equations
- Applications of distributions in Sobolev spaces

REFERENCES

[1] P. K. Bhattacharyya, Distributions. Generalized functions with applications in Sobolev spaces, Walter de Gruyter, Berlin, 2012.

ASSESSMENT AND GRADING

	Criterion	Points	Pass mark
1.	Assignments		
2.	Project		
3	Final examination		
	Total	100	55