Program	Level	First cycle		
	Name of the program	Pure Mathematics, Applied Mathematics, Mathematics Education, Mathematics and Informatics Education		

COURSE

Course title	**Geometry I**			
Course code	Semester	Course status	ECTS	Contact hours (L+AE+LE)
PMAT260	IV	Mandatory course	5	3+2+0
Lecturer				
Course Goals	The goal of this course is to introduce students to axiomatic systems in classical geometry and the basics of neutral, Euclidean and non-Euclidean geometry.			
Learning Outcomes	After completing this course, students should: - Understand the basics related to axiomatic systems in geometry - Understand the main concept regarding incidence geometry, plane geometry, neutral, Euclidean and hyperbolic geometry - Learn basics of geometric transformations, especially symmetries and their products - Understand the role of the axiom of parallels in geometry			

COURSE CONTENT

- Axioms of incidence and incidence geometry
- Plane geometry, five axioms of plane geometry, measurement of line segments and angles, half-plane and SAS postulate
- Neutral geometry, criteria for congruence of triangles, quadrilaterals, theorem of Saccheri and Legendre, propositions equivalent to the fifth postulate of Euclid, rectangles and defect of a rectangle
- Euclidean geometry, basic theorems of Euclidean geometry, similar triangles, Pythagorean theorem, trigonometry
- Area, the area postulate in neutral geometry, area in Euclidean geometry
- Circles in neutral and Euclidean geometry
- Constructions in neutral and Euclidean geometry
- Congruence transformations, similarity transformations

LITERATURE

[1] Mileva Prvanović, *Osnovi geometrije*. Građevinarska knjiga, Beograd, 1987.
[2] Gerard A. Venema, *Foundations of Geometry*. Pearson Education, 2011.
[3] Marvin J. Greenber, *Euclidean and Non-Euclidean Geometry*, 4th edition. W. H. Freeman, New York, 2007.
[4] John Stillwell, *The Four Pillars of Geometry*. Springer Verlag, 2005.

STUDENT WORKLOAD (hours in a semester)

Lectures	45	Exercises	30	Individual work	50	T o t a l	125

GRADING			REMARKS	
Criterion	Maximum points	Minimum points		
Midterm exams	50	25		
Final exam	50	25		
T o t a l	100	55		