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

COURSE				
Course title	**Set Theory**			
Course code	Semester	Course status	ECTS	Contact hours (L+AE+LE)
PMAT 210	III	Mandatory course	4	2+2+0
Lecturer				
Course Goals	This course introduces students to basic concepts and notation from the algebra of sets and a particular set of mathematical objects as relations, functions, cardinals, and ordinals. Student should be able to understand different systems of axiomatic set theory.			
Learning Outcomes	Student should: - understand the basic and general facts of set theory, - be able to apply set theoretic concepts in different mathematical problems (as in mathematical analysis, topology, discrete mathematics), - understand connections between propositional calculus and set theory.			

COURSE CONTENT

- Language of set theory, symbols, atomic formula, formulas of set theory.
- Propositional calculus. Cartesian product. Quantifiers.
- Axioms of set theory.
- Relations and functions. Basic theorems.
- Cardinals. Countable sets.
- Cantor-Bernstein Theorem.
- Properties of the cardinal c.
- Equivalents of the Axiom of choice.
- Ordinal numbers.
- Arithmetics of ordinal numbers
- Sets of ordinal numbers.

LITERATURE

[1] M. Pepić, Uvod u matematiku, UM BiH, Sarajevo, 2000.
[2] M. Pepić, Teorija skupova (interna skripta u Odsjeku za matematiku), Sarajevo 2003.
[3] Pavle Papić, Uvod u teoriju skupova, HMD, Zagreb, 2000.
[4] R. Živković, H. Fatkić i Z. Stupar, Zbirka zadataka iz matematike, Svjetlost, Sarajevo, 1987.
[5] Paul Halmos, Naive Set Theory, van Nostrand, 1960.
[6] Kazmierz Kurtovski, Set Theory and Topology, Warszawa 1977.

STUDENT WORKLOAD (hours in a semester)

Lectures	30	Exercises	30	Individual work	40	T o t a l	100

GRADING			REMARKS
Criterion	Maximum points	Minimum points	
Midterm exams	70	35	
Homework	10		
Final exam	20	10	
T o t a l	100	55	