

Program	Level		First cycle			
	Name of the program		Mathematics Education			
COURSE						
Course title	Teaching Mathematics to Gifted Students					
Course code	Semester	Course status	ECTS	Contact (L+AE+LE)	hours	
EDU 330	V	Mandatory course	5	2+2+0		
Lecturer						
Course Goals	This course introduces students to elementary techniques for solving Diophantine equations. Special attention is given to techniques for solving polynomial-type and exponential-type Diophantine equations as well as to Pell's equation which is of great importance in algebraic number theory.					
Learning Outcomes	Upon successful completion of the course students will be able to: -understand number theory on a deeper level, -use this knowledge in education mathematically gifted students.					
COURSE CONTENT						
<ul style="list-style-type: none"> - The factoring method for solving Diophantine equations. - Solving Diophantine equations using inequalities. - The modular arithmetic method. Quadratic residues. - Pythagorean triples. - Fermat's method of infinite descent. - Various algebraic identities. - Representation of positive integers as a sum of two squares. - Diophantine equations of exponential type. - Pell's equation. Pell-type equation. - Gaussian integers. 						
LITERATURE						
<p>[1] T. Andreescu, D. Andrica, I. Cucurezeanu, An Introduction to Diophantine Equations, Birkhauser, 2010.</p> <p>[2] Š. Arslanagić, F. Zejnullahi, Matematička čitanka 3, Grafičar promet d.o.o., 2011.</p> <p>[3] W. Sierpinski, Elementary Theory of Numbers, North-Holland, 2011.</p> <p>[4] D.F. Bazilev, Diofantne jednačine, Minsk NTC „API“, 1999.</p> <p>[5] I. Cucurezeanu, Ecuatii in Numere Integri, Aramis, 2006.</p>						
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	40+40	23+22				
Homework	10+10	10				
Final exam	40	22				
T o t a l	100	55				