

COURSE TITLE		METHODOLOGY SEMINAR: MATH COMPETITIONS				
Code	PMM012	Year of study	Graduate study II. year			
Lecturer(s)	Željka Zorić	ECTS credits	3			
Assistants		Teaching methods (hours per semester)	L	S	E	F
			0	30	0	0
Course status	Compulsory	e-learning %				
COURSE DESCRIPTION						
Course objectives	<ul style="list-style-type: none"> • prepare students for working with high school students preparing for math competitions • identify and prepare math topics appropriate for working with students attending additional classes • prepare students for lifelong learning in mathematics education 					
Course prerequisites for enrolment and competency requirements	No prerequisites for the course.					
Expected learning outcomes on course level (4-10 learning outcomes)	<p>After finishing the course students should be able to:</p> <ul style="list-style-type: none"> • prepare plans and programs for additional classes in elementary and high school • organize and teach additional classes in elementary and high school • select and prepare a topic for an additional class in elementary school • select and prepare a topic for an additional class in high school 					
Detailed course content according to teaching hours	<p>On the first class of the course students will choose the topic of their seminar report, receive a detailed instruction on how to write it and present it, and arrange a date on which the presentation will be held. By then, there will be no lectures.</p> <p>List of topics for seminar reports:</p> <ul style="list-style-type: none"> • Number theory • Mathematical induction • Dirichlet's principle • Combinatorics and Probability theory • Inequalities • Planimetrics • Stereometrics • Analytic geometry • Trigonometry • Vectors • Diophantine equations • Logic tasks • Polynomials 					
Types of teaching methods	<input type="checkbox"/> lectures <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> exercises <input type="checkbox"/> entirely <i>online</i> <input type="checkbox"/> e-learning, combination <input type="checkbox"/> field work		<input checked="" type="checkbox"/> individual tasks <input checked="" type="checkbox"/> multimedia <input type="checkbox"/> laboratory <input type="checkbox"/> mentorship <input type="checkbox"/> (fill in)			

Student obligations	<ul style="list-style-type: none"> • regular attendance • write a seminar report on selected topic • submit a written report • present a report • actively participate in the classes 					
Monitoring students practice (enter ECTS credits for each activity so that total ECTS credits correspond to subject scores)	Attendance	1	Research		Praxis	
	Experiments		Paper		(fill in)	
	Essays		Report	2	(fill in)	
	Preliminary exam		Oral exam		(fill in)	
	Written exam		Project		(fill in)	
Evaluation and assessment of students performance in the course and on the final exam	<p>Students who were regular in attending classes (over 80%), who wrote and presented a seminar paper and got a passing grade, have the right to obtain the signature.</p> <p>Students with the right to the signature have their grade formed according to the grade of their report – written part (40%), presentation (50%) and activity during the seminar (10%).</p>					
Obligatory literature (available in the library or through other media)	Title			Number of copies in the library	Availability through other media	
	B. Pavković i D. Veljan, Elementarna matematika 1, Tehnička knjiga, Zagreb, 1992.					
	B. Pavković i D. Veljan, Elementarna matematika 2, Školska knjiga, Zagreb, 1995.					
	V. Stošić, Natjecanja učenika osnovnih škola, Matkina biblioteka, HMD, Zagreb, 2000.					
	Ž. Hanjš I dr., Matematička natjecanja 1992/93-2000/01, Elementarna matematika, HMD, Element, Zagreb.					
	Ž. Hanjš, Međunarodne matematičke olimpijade, Element, Zagreb, 1997					
	B. Pavković i dr., Male teme iz matematike, Mala matematička biblioteka, HMD, Zagreb, 1994					
	B. Pavković i dr., Elementarna teorija brojeva, Mala matematička biblioteka, HMD, Zagreb, 1994.					
Additional literature	<p>Š. Arslanagić, Matematička indukcija, Otisak d.o.o., Sarajevo, 2001.</p> <p>M. Krnić, Dirichletovo pravilo, Matkina biblioteka, HMD, Zagreb, 2001.</p> <p>N. Elezović, Kompleksni brojevi, Mala matematička biblioteka, HMD, Zagreb, 2000.</p> <p>Z. Kurnik, Diofantske jednačbe, Matkina biblioteka, HMD, Zagreb, 2007.</p> <p>K. H. Rosen, Elementary Number Theory and its Application, Addison Wesley, 1993.</p> <p>M. S. Popadić, Priručnik za takmičenja srednjoškolaca u matematici, III kongruencije, Matematička biblioteka 33, Beograd, 1967.</p> <p>Ž. Hanjš, Trigonometrijski oblik kompleksnog broja, Matematičko-fizički</p>					

	<p>list, XL, 45-51.</p> <p>M. Cvitković, Kombinatorika - zbirka zadataka, Element, Zagreb, 1994.</p> <p>Ț. Hanjš, Konačne diferencije, No1, 45-54, 1986 i Diferencijske jednađbe, No2, 46-59, 1986; Inicijalni problem za linearne diferencijske jednađbe, No1, 34-50, 1987, Matematika</p> <p>V. B. Lidskii, i dr., Zadači po elementarnoi matematiki, Moskva, 1973.</p> <p>Ț. Hanjš i dr., Matematička natjecanja 1992/93 - 2000/01, Elementarna matematika, HMD, Element, Zagreb</p> <p>M. S. Klamkin, USA Mathematical Olympiads 1972 -1986, The Mathematical Association of America, 1988.</p> <p>M. S. Klamkin, International Mathematical Olympiads 1978 - 1985, The Mathematical Association of America, 1986.</p> <p>Z. Kadelburg i P. Mladenović, Savezna takmičenja iz matematike, Beograd, 1990.</p> <p>D. Glasnović Gracin, Matematika 5 plus, Element, Zagreb, 2008</p> <p>I. Kniewald – M. Ljubičić, Matematika 6 plus, Element, Zagreb, 2008</p> <p>B. Dakić, Matematika 7 plus, Element, Zagreb, 2008</p> <p>B. Dakić, Matematika 8 plus, Element, Zagreb, 2008</p> <p>Matematičko-fizički list - časopis iz matematike i fizike za učenike i nastavnike srednjih škola, Hrvatsko matematičko društvo i Hrvatsko fizikalno društvo, Zagreb.</p> <p>Matka - časopis iz matematike za učenike osnovnih škola, HMD, Zagreb.</p> <p>Triangle - matematički časopis za učenike i nastavnike osnovnih i srednjih škola, Udruženje matematičara Bosne i Hercegovine, Sarajevo</p>
Quality monitoring methods that enable the achievement of course objectives	During the last week of the course in an anonymous survey students will evaluate the quality of the classes.
Other (in the opinion of the proposer	