

Program		Type of studies (cycle)	Third cycle		
		Name of the program	SEE Doctoral Studies in Mathematical Science		
Course					
Course title		Harmonic Analysis			
Course code	Semester	Course status	ECTS credits	Contact hours	
	II		10	30	
Teaching staff	Teacher	Prof. Dr. Muharem Avdispahić			
	Other staff	Doc. Dr. Nacima Memić			
Course goals	Method of harmonic analysis has a central role in many areas of mathematical research. Deep connections between geometric function theory, partial differential equations and analysis on the Heisenberg group provide an excellent sample ground. This course is intended to acquaint its participants with the tools of harmonic analysis suitable for study of boundary value problems for geometrically interesting differential operators.				
Course content/topics					
<ul style="list-style-type: none"> • Hilbert transform • Pseudodifferential operators • Fractional and singular integrals • Convexity and pseudoconvexity • Complex integral operators • Hardy spaces • Heisenberg group • Analysis on Heisenberg group 					
LITERATURE		Grading			
F. M. Christ, <i>Lectures on Singular Integrals</i> , American Mathematical Society 1990. L. Grafakos, <i>Modern Fourier analysis</i> , Springer 2009. S. G. Krantz, <i>Explorations in harmonic analysis</i> . Birkhäuser 2009. C. Sogge, <i>Fourier integrals in classical analysis</i> . Cambridge University Press 1993. E.M. Stein, <i>Harmonic Analysis: Real-Variable Methods, Orthogonality and Oscillatory Integrals</i> , Princeton University Press 1993.			Criterion	Points	Cut-off points
		1.	Written assignment	20	11
		2.	Project	40	22
		3.	Final exam	40	22
		Total			100