

Study programmes: PhD studies – Mathematics – Analysis and differential equations			
Course name: 3M120 Integral operators			
Lecturers: Danko Jocić, Đorđe Krtinić			
Status: Optional			
ECTS: 9			
Attendance prerequisites: -			
Course aims: Mastering of notions and methods of the integral operators.			
Course outcome: Student should understand and be able to apply notions and techniques of the integral operators.			
Course content: Definition and basic properties of integral operators. Criteria for the boundedness and compactness of integral operators. Convolutional operators and their properties (compactness and boundedness via kernel). Operators with symmetric kernel, the Hilbert-Schmidt theory, Mercer's theorem. A criterion for unitary equivalence of linear operator to integral operator. Carleman's operators. Convolutional operators. One-dimensional and two-dimensional Hilbert's operator. The Calderon-Zygmund operators (specially Riesz's operators). The Wiener-Hopf operators and the Wiener-Hopf integral equations.			
Literature:			
1. В.Б. Коротков, Интегральные операторы, Наука, Новосибирск 1983.			
2. P.R. Halmos, V.S. Sunder, Bounded integral operators on L2 spaces, Springer Verlag, 1978.			
3. Elias, M. Stein, Singular Integrals and differentiability properties of functions, Princeton 1970.			
4. С.Г. Михлин, Многомерные сингулярные интегралы и интегральные уравнения, Москва 1962.			
5. 3. Прёсдорф, Некоторые классы сингулярных уравнения, Мир, Москва 1979.			
Number of hours: 10	Lectures: 4	Research: 6	
Teaching and learning methods: Frontal / Individual / Research			
Assessment (maximal 100 points)			
Course assignments	Points	Final exam	points
Lectures		Written exam	
Exercises / Tutorials	50	Oral exam	50
Colloquia		Written-oral exam	
Essay / Project			