

Course: Banach algebras and spectral theory		
Teacher(s): Snežana Živković Zlatanović, Suzana Aleksić		
Course status:	Elective	
ECTS:	12	
Prerequisites:	None	
Goal		
Mastering advanced notions and result in spectral theory.		
Outcomes		
Student can solve problems related to Banach algebras and spectra of operators on Banach and Hilbert spaces.		
Contents		
<i>Theoretical lectures</i>		
Banach algebras: invertibility, spectrum and resolvent; spectral radius; spectral mapping theorem; topological divisors of zero; spectrum and subalgebras.		
Perturbation classes and radical, maximal ideals, commutative Banach algebras, spectrum of compact operator, spectrum of selfadjoint and unitary operator.		
Spectra of operators: shift operator, residual and continuous spectrum; normal, unitar, selfadjoint and compact operators; spectrum of induced operator; semicontinuity of spectrum.		
Basics of C*-algebras.		
Recommended bibliography.		
1. B. Ракочевић: „Функционална анализа“, Научна књига, Београд, 1994.		
2. С. Курепа, Функционална анализа - елементи теорије оператора, Школска књига, Загреб, 1980.		
3. C. S. Kubrusly, Spectral theory of bounded linear operators,Birkhäuser, 2020.		
4. V. Müller, Spectral theory of linear operators and spectral systems in Banach algebras, Birkhäuser, 2007.		
Number of classes per week	Theoretical: 4	Practical:
Methods of teaching		
Group, individual, interactive.		
Knowledge rating (max 100 points)		
Knowledge estimation:		
Seminars: 30 points		
Final exam: 70 points		