Course: Functional analysis		
Teacher(s): Dragan S. Djordjević, Vladimir Rakočević, Marko Nedeljkov		
Course status: Elective		
ECTS: 12		
Prerequisites: None		
Goal Mastering fundamental results in functional analysis.		
Outcomes Student can solve problems related to Banach and Hilbert spaces, as well as to operators on these spaces. Basic knowledge on Banach algebras and spectral theory is adopted.		
Contents *Theoretical lectures* Banach spaces: norms, bounded linear operators, compact operators, fundamental theorems: Hahn-Banach, uniform boundedness, closed graphic. Dual spaces and dual operators. Hilbert spaces: inner product and orthogonality, orthogonal basis, special classes of operators: selfadjoint, normal, unitar operators. Operators with closed range: injectivity module, reduced injectivity module, surjectivity module. Basic Banach algebras: spectrum, resolvent, spectrum of compact operator, spectrum of selfadjoint and unitary operator.		
Recommended bibliography. 1. В. Ракочевић: „Функционална анализа“, Научна књига, Београд, 1994. 2. С. Курепа, Функционална анализа - елементи теорије оператора, Школска књига, Загреб, 1980. 3. G. K. Pedersen, Analysis NOW, Springer, 1989. 4. E. Kreyszig, „ Introductionary functional analysis with applications“, John Wiley and Sons, New York, 1978.		
Methods of teaching Group, individual, interactive.	Methods of teaching Group, individual, interactive.	Methods of teaching Group, individual, interactive.
Knowledge rating (max 100 points)		
Knowledge estimation: Seminars: 30 points Final exam: 70 points		