Course: Generalized Inverses	
Teacher(s): Dijana Mosić	
Course status: elective	
ECTS: 12	
Prerequisites: -	

Goal

Acquiring knowledge on advanced theory and applications in generalized inverses.

Outcomes

The students will be able to proceed with research work on the generalized inverses of complex matrices, bounded linear operators, elements of Banach and C*-algebras, and elements of rings.

Contents

Theoretical lectures

Generalized inverses in rings, Banach and C*-algebras.
Generalized inverse of operators on Banach and Hilbert spaces, and complex matrices.
Hermitian, normal and EP elements.
Reverse order law for generalized inverses.
Perturbations and additive results.
Representations of generalized inverses.
Operator equations.
Computing generalized inverses.
Partial orders.

Practical lectures

Implementation of the theoretically analysed methods.

Recommended bibliography

1. A. Ben-Israel, T. N. E. Greville, Generalized inverses: theory and applications, Second Ed.,Springer 2003.
2. D. S. Djordjević and V. Rakočević: Lectures on generalized inverses, Faculty of Sciences and Mathematics, University of Niš ,Niš, 2008.
3. D. Mosić, Generalized inverses, Faculty of Sciences and Mathematics, University of Niš, Niš 2018.

Number of classes per week	Theoretical: 4	Practical:

Methods of teaching

Theoretical lectures and independent work of students during practical hours.

Knowledge rating (max 100 points)

50 points on pre-exam and 50 points on oral exam