

Course: Mathematical Logic		
Course instructors: Silvia Ghilezan, Zoran Petrić		
Course type: elective		
Credit points ECTS: 12		
Prerequisites:		
Course objectives: This is a basic course preceding other specialised courses in Logic. Since the undergraduate curricula concerning this subject are not uniform, a plan is to cover propositional and predicate calculus.		
Learning outcomes: After passing the exam, students are familiar with the notions of syntax and semantics of propositional logic and understand the completeness theorem. Concerning the predicate calculus, they are familiar with the notion of operational-relational structure, interpretation, reduction to prenex normal form and the completeness theorem. Moreover, some basic knowledge in the field of Boolean algebra is acquired.		
Course description (outline): <i>Theoretical classes</i> 1. Formal languages, valuation, tautologies 2. Substitution, replacement of equivalents 3. Formal systems, natural deduction 4. Hilbert system, deduction theorem 5. Completeness of propositional logic 6. Operational-relational structures 7. Language of first order 8. Valuation, free and bound variables 9. Natural deduction for predicate logic 10. Lattices, Boolean algebras 11. Completeness of predicate logic 12. First-order theories <i>Practice classes</i>		
References: 1. K. Došen, Osnovna logika, manuscript, 2013, http://www.mi.sanu.ac.rs/~kosta/Osnovna%20logika.pdf 2. P. Janičić, Matematička logika u računarstvu, 2008 http://poincare.matf.bg.ac.rs/~janicic/books/mlr.pdf 3. M. Adžić, Beleške iz logike, manuscript, 2021, https://mradzic.github.io/BIL.pdf 4. S.C. Kleene, Mathematical Logic, Dover Publications, New York, 2002 5. E. Mendelson, Introduction to Mathematical Logic, CRC Press, 2010.		
Active teaching hours: 5	Theoretical classes: 5	Practice classes:
Methods of teaching: Classical teaching methods during lectures are planned. Students evaluation is made through assignments and essays. The final exam is oral and it serves to check the overall comprehension of the presented programme.		
Grading structure (100 points) Предиспитне обавезе: <ul style="list-style-type: none"> ● activities during lectures 10 points, ● essay 30 points, Final exam 60 points		