Level: bachelor

Course title: Mathematical logic in computer science (*И*377)

Status: elective

ECTS: 6

Requirements: none

Learning objectives:
Introducing students to the role, concepts and techniques of mathematical logic within theoretical computer science.

Learning outcomes:
Students should acquire knowledge sufficient to grasp the role of mathematical logic and, more generally, formal methods in theoretical computer science.

Syllabus:
Theoretical instruction
Propositional calculus – formulae, models and truth tables. Propositional logic and deductive systems – Hilbert's system, reliability, completeness and resolution. Predicate calculus – formulae, models and truth tables. Predicate logic – deductive systems. Resolution in predicate calculus. Decidability problems. Temporal logics – formulae, models and truth tables. Temporal logics – deductive systems. LTL and CTL. Specification and verification. Model testing. Modal logics. Hoare logic.

Practical instruction
Formal proofs in propositional calculus. Models of propositional calculus. Formal proofs in predicate calculus. Formal proofs in temporal logics.

Weekly teaching load				Other: 0
Lectures: 2	Exercises: 2	Other forms of teaching: 0	Student research: 0	