Study programmes: PhD – Mathematics

Course name: Theory of Learning and Teaching with History of School and Pedagogical Ideas

Lecturers: Aleksandar Lipkovski

Status: Optional

ECTS: 9

Attendance prerequisites: None

Course aims: The acquisition of theoretical knowledge in theory of mathematics learning and development of mathematical ideas through history.

Course outcome: Upon completion of the course, the student has theoretical knowledge about theory of mathematics learning and development of mathematical ideas through history. Also student is able to use this knowledge for scientific research purposes.

Course content:

- Analysis of mathematics learning
- Learning theories: Piaget, Bruner, Skemp, Vygotsky
- Mathematical Abilities - Current Research and Understanding
- Psychological aspects of the mathematical language
- Upbringing and pedagogy in ancient times (Socrates, Plato, Aristotle)
- Upbringing and schooling the age of feudalism
- Renaissance and reformation (Erasmus of Rotterdam, Francis Bacon, Jan Amos Komenský)
- Time of enlightenment (Kant, Pestalozzi and followers)
- Modern age
- Pedagogical ideas in contemporary teaching of mathematics
- Practicum of elementary mathematics

Literature:

1. Vigotski: Mišljenje i govor
2. Freudenthal: Mathematics as an educational task
3. Skemp, R: The psychology of learning mathematics. Penguin,London, 1986
4. Courant, Robbins: What Is Mathematics? An Elementary Approach to Ideas and Methods

Number of hours: 10	**Lecures: 4**	**Tutorials: -**	**Laboratory: -**	**Research: 6**

Teaching and learning methods: Frontal, Interactive and Exercises.

Assessment (maximal 100 points)

Course assignments	**points**	**Final exam**	**points**
Lectures	-	Written exam	-
Exercises / Tutorials	30	Oral exam	40
Colloquia	-	Written-oral exam	-
Essay / Project	30		