Course Unit Descriptor

Study Programme: Ph.D. in Computer Science

Course Unit Title: Fuzzy Systems

Course Unit Code: ID122

Name of Lecturer(s): Ivana Štajner Papuga

Type and Level of Studies: Doctroal Academic Degree

Course Status (compulsory/elective): Elective

Semester (winter/summer): Winter

Language of instruction: Serbian (primary), English (secondary)

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 7

Prerequisites: None

Course Aims: Introduction to the theory of fuzzy sets and systems and its role in modeling of fuzzy data. Acquiring fundamental knowledge in fuzzy statistical analysis and estimation.

Learning Outcomes: A successful student will be able to make a critical assessment of a given problem and apply methods of fuzzy set theory and fuzzy statistics.

Syllabus:

- Triangular norms
- Fuzzy sets
- Fuzzy numbers
- Fuzzy relations
- Fuzzy arithmetic (α-cuts, extension principle)
- Fuzzy random sets
- Fuzzy statistical analysis and estimation
- Tests of hypothesis
- Applications.

Required Reading:

1. V. A. Zorich, Mathematical Analysis I, Springer –selected chapters
2. V. A. Zorich, Mathematical Analysis II, Springer –selected chapters
3. F. Ayres, E. Mendelson, Schaum's Outline of Calaculus, McGraw-Hill BookCompany –selected chapters

Weekly Contact Hours: 2	**Lectures:** 2	**Practical work:** 0

Teaching Methods: classical teaching methods – lectures and exercises

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	Points	**Final exam**	Points
Active class participation		written exam	
Practical work		oral exam	40
Preliminary exam(s)		…….	
Term paper	60		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.