**Table 5.1** Course specification to doctoral study programs

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| **Course name: Fuzzy logic and hydrological applications** | | |
| **Teacher or teachers:** [**Kisi S. Ozgur**](../P%209.3%20Knjiga%20Nastavnika%20DOS%20He/13.%20Ozgur%20S.%20Kisi,%20redovni%20profesor.xlsx) | | |
| **Course status:** Elective | | |
| **Number of ECTS:** 10 | | |
| **Precondition courses:** None | | |
| **Educational goal**  The purpose of this course is to provide the student the theory and application of the fuzzy logic and to develop students’ ability to analyze hydrological problems based on the understanding of its basic concepts, such as the selection of appropriate fuzzy method, membership functions and defuzzification methods, determination of rule base. | | |
| **Educational outcomes**  The students acquire the abilities to know basic concepts and philosophy of fuzzy logic, the make up applications of fuzzy logic to solve related hydrological problems. | | |
| **Course content**  Introduction to fuzzy: The philosophy and theory of fuzzy logic  Selection of appropriate membership functions and fuzzy rule base  Fuzzy inference methods  Defuzzification methods  Mamdani and Sugeno fuzzy methods  Hydrological applications of fuzzy logic methods | | |
| **Literature**  1. Sivanandam, S.N., Sumathi, S., Deepa, S.N. (2007). Introduction to Fuzzy Logic using MATLAB, Springer-Verlag Berlin Heidelberg, New York, USA.  2. Ross, T.J. (2010). Fuzzy Logic with Engineering Applications, John Wiley & Sons, Ltd, UK.  3. MATLAB User’s Guide, Fuzzy Logic Toolbox, The MathWorks, Inc. | | |
| **Number of active teaching classes (weekly)** | Lectures: 4 | Study research work: 0 |
| **Teaching methods**  Lectures. Consultations with students. Homework. Preparation and defense of a term paper related to solution of a hydrological problem | | |
| **Knowledge evaluation (maximum 100 points)**  **Pre-examination obligations Points Final exam Points**  Lecture attendance **10**  Oral part of the exam **30**  Term paper **40**  Homework **20** | | |