Course Unit Descriptor

Study Programme: Applied mathematics			
Course Unit Title: Selected topics in applied algebra (MB)			
Course Unit Code: MB32			
Name of Lecturer(s): Andreja Tepavcevic			
Type and Level of Studies: master			
Course Status (compulsory/elective): elective			
Semester (winter/summer): winter			
Language of instruction: english			
Mode of course unit delivery (face-to-face/distance learning): face-to-face and distance learning if there are less than 5 participants			
Number of ECTS Allocated: 5			
Prerequisites: none			
Course Aims: Acquiring knowledge of the various techniques of applied algebra and training in solving practical problems using these techniques.			
Learning Outcomes: Knowledge of various techniques of applied algebra and ability of solving certain types of practical problems. A successful student would be able to independently choose the applied algebra techniques that are best suited to solve certain problems.			
Syllabus: Theory After the systematization of the classical algebra used in applications, basis of one or more of the following areas will be presented: theory and application of fuzzy sets, coding theory, cryptography and cryptanalysis, theory of clones, formal concept analysis, mathematical genetics, pattern recognition with applications in biology. Practice Suitable problems will be solved by methods in applied algebra, preferably using the Matlab or a similar program**.**			
Required Reading: (some of these books depending on the chosen technique) 1. Maria Welleda Baldoni, Ciro Ciliberto, Elementary Number Theory, Cryptography and Codes, Springer 2009. 2. R.Lidl, G. Pilz, Applied Abstract Algebra, 2-nd ed., Springer, 1998. 3. G. Klir, B. Yuan, Fuzzy Sets and fuzzy logic, Theory and Applications, Prentice Hall 2002. 4. B. Ganter, R. Wille, Formal Concept Analysis , Springer 1999. 5. A. Edwards, Foundations of Mathematical Genetics, Cambridge University Press 2000. 6. Д. Ацкета, Одабрана поглавља теорије препознавања облика са применама, Универзитет у Н. Саду 1986. 7. D. Stinson, Chriptography: theory and practice, CRC Press Inc. 2002.			
Weekly Contact Hours: 4	**Lectures:** 3	**Practical work:** 1	
Teaching Methods: Lectures are presented using classical teaching methods and supported by a beamer. During practical instructions, typical examples of problems will be solved independently and in teams. Each student will complete two projects and write and defend a seminar paper.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	**Final exam**	points
Projects	40	Seminar paper defense	60