<table>
<tr><td>COURSE NAME</td><td colspan="6">ALGEBRA II</td></tr>
<tr><td>Code</td><td>PMM813</td><td>Year of study</td><td colspan="4">1st year graduate study</td></tr>
<tr><td>Course teacher</td><td>Gordan Radobolja</td><td>Credits (ECTS)</td><td colspan="4">5</td></tr>
<tr><td rowspan="2">Associate teachers</td><td rowspan="2"></td><td rowspan="2">Type of instruction (number of hours)</td><td>L</td><td>S</td><td>E</td><td></td></tr>
<tr><td>30</td><td>15</td><td>0</td><td>0</td></tr>
<tr><td>Status of the course</td><td>Compulsory</td><td>Percentage of application of e-learning</td><td colspan="4">0%</td></tr>
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COURSE DESCRIPTION

Course objectives	- State the most important results on polynomials and polynomial rings with the emphasis on polynomials over a field. - Set the theory of algebraic field extensions and prove the fundamental theorem of algebra. - Prove the fundamental theorem of Galois theory and as a consequence, unsolvability of the quintic. - Set the foundations of theory of modules over arbitrary ring. - Prepare the students for more advanced algebraic courses on graduate and postgraduate level.
Course enrolment requirements and entry competences required for the course	- Courses passed: *Algebraic structures* and *Vector spaces I*, - Courses taken: *Algebra I.*
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - interpret formal polynomials in terms of categories - distinguish a formal polynomial and a poynomial function - compare free modules over arbitrary rings and vector spaces - connect algebraic field extensions with group theory - argue on unsolvability of classical Greek problems in terms of field extensions - conclude weather a given algebraic equation is solvable using Galois theory
Course content broken down in detail by weekly class schedule (syllabus)	- Algebras (2) - Polynomial rings (3) - Roots of polynomials (1) - Factorization in polynomial rings (3) - Modules and homomorphisms (4) - Sums, products and exact sequences of modules (4) - Hom functor (2) - Free modules (3) - Tensor product of modules (4) - Algebraic field extensions (3) - Classical Greek problems (1) - Splitting fields and algebraic closures (4) - Galois theory (4) - Applications of Galois theory (3) - Abel's theorem (3)
Format of instruction	Frontal lectures and seminars
Student responsibilities	Lectures and seminars attendances are obligatory. Students should write and present seminars.

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Lectures attendance (2) Tests (1) Seminar (1) Oral exam (1)
Grading and evaluating student work in class and at the final exam	Students present one seminar and write two tests. These are prerequisites for oral exam. Final grade is based on seminar (20%), tests (30%) and oral exam (50%).
Required literature (available in the library and via other media)	**Title** T. W. Hungerford, *Algebra*, Springer, 2003 D. S. Dummit, R. M. Foote, *Abstract algebra*, Wiley, 2003
Optional literature (at the time of submission of study programme proposal)	S. Lang, *Algebra*, Springer 3rd edition, 2005
Quality assurance methods that ensure the acquisition of exit competences	Discussion in classes and official student survey.
Other (as the proposer wishes to add)	