

UČNI NAČRT PREDMETA / COURSE SYLLABUS							
Predmet:		Algebra 3					
Course title:		Algebra 3					
Študijski program in stopnja Study programme and level		Študijska smer Study field			Letnik Academic year		Semester Semester
Univerzitetni študijski program Matematika		ni smeri			3		prvi ali drugi
First cycle academic study programme Mathematics		none			3		first or second
Vrsta predmeta / Course type					izbirni		
Univerzitetna koda predmeta / University course code:					M0264		
Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS	
30		30			90	5	
Nosilec predmeta / Lecturer:		prof. Primož Moravec					
Jeziki / Languages:		Predavanja / Lectures: slovenski/Slovene					
		Vaje / Tutorial: slovenski/Slovene					
Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:				Prerequisites:			
Vsebina:				Content (Syllabus outline):			

<p>Grupe: končne grupe, proste grupe, prezentacije z generatorji in relacijami.</p> <p>Kategorije: kategorija in funktor, naravne transformacije, univerzalne konstrukcije.</p> <p>Moduli: podmoduli, kvocientni moduli, homomorfizmi, eksaktnost, prosti in projektivni moduli, tenzorski produkt modulov.</p> <p>Mreže: osnovne lastnosti in primeri, posebni razredi mrež.</p> <p>Teorija komutativnih obsegov: Galoiseva grupa, Galoiseva korespondenca, rešljivost polinomskih enačb z radikali, osnovni izrek algebre.</p>	<p>Groups: finite groups, free groups, presentations with generators and relations.</p> <p>Categories: category and functor, natural transformations, universal constructions.</p> <p>Modules: submodules, quotient modules, homomorphisms, exactness, free and projective modules, tensor product of modules.</p> <p>Lattices: basic properties and examples, special classes of lattices.</p> <p>Fields: Galois group, Galois correspondence, solvability of polynomial equations by radicals, fundamental theorem of algebra.</p>
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Temeljni literatura in viri / Readings:

<p>Vidav: Algebra, DMFA-založništvo, Ljubljana, 2003.</p> <p>J. Gallian: Contemporary Abstract Algebra, Brooks/Cole, 2013.</p> <p>P. M. Cohn: Algebra, 2nd edition, John Wiley & Sons, New York, 1997.</p> <p>T. W. Hungerford: Algebra, Springer, New York-Berlin, 2003.</p> <p>J. Rotman: Galois Theory, 2nd edition, Springer, New York, 2001.</p>

Cilji in kompetence:

<p>Študent spozna osnovne pojme iz algebre, ki jih potrebuje pri nadaljnem študiju matematike. Ob tem se uči abstraktnega načina razmišljanja in se spoznava s strogim matematičnim jezikom. Na vajah si pridobiva praktično, delovno znanje z obravnavanega področja.</p>
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Objectives and competences:

<p>Basic notions in algebra are introduced, which are needed for the subsequent study. Abstract thinking and mathematical rigour are enhanced. Practical, working knowledge is obtained during exercise classes.</p>
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Predvideni študijski rezultati:

<p>Znanje in razumevanje: Poznavanje in razumevanje osnovnih algebraičnih pojmov. Uporaba: Uporaba teorije pri reševanju problemov.</p>

Intended learning outcomes:

<p>Knowledge and understanding: Knowledge and understanding of basic algebraic concepts. Application: Application of the theory in solving problems.</p>
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Refleksija: Razumevanje teorije na podlagi primerov in uporabe.

Prenosljive spretnosti – niso vezane le na en predmet: Spretnost prenosa teorije v prakso.

Reflection: Understanding of the theory from the applications.

Transferable skills: Ability to transfer the theory into practice.

Metode poučevanja in učenja:

Predavanja, vaje, konzultacije

Learning and teaching methods:

Lectures, exercises, consultations

Delež (v %) /

Weight (in %)

Načini ocenjevanja:

Assessment:

<p>Način (pisni izpit, ustno izpraševanje, naloge, projekt): 2 kolokvija namesto izpita iz vaj, izpit iz vaj, izpit iz teorije</p> <p>ocene: 1-5 (negativno), 6-10 (pozitivno) (po Statutu UL)</p>	<p>50%</p> <p>50%</p>	<p>Type (examination, oral, coursework, project): 2 midterm exams instead of written exam, written exam</p> <p>oral exam</p> <p>grading: 1-5 (fail), 6-10 (pass) (according to the Statute of UL)</p>
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Reference nosilca / Lecturer's references:

Primož Moravec:

- MORAVEC, Primož. Groups of order p [sup] 5 and their unramified Brauer groups. Journal of algebra, ISSN 0021-8693, 2012, vol. 372, str. 420-427 [COBISS.SI-ID 16521049]
- MORAVEC, Primož. Unramified Brauer groups of finite and infinite groups. American journal of mathematics, ISSN 0002-9327, 2012, vol. 134, no. 6, str. 1679-1704 [COBISS.SI-ID 16521305]
- DELIZIA, Constantino, MORAVEC, Primož, NICOTERA, Chiara. Groups with all centralizers subnormal of defect at most two. Journal of algebra, ISSN 0021-8693, 2013, vol. 374, str. 132-140 [COBISS.SI-ID 16556889]

