

UČNI NAČRT PREDMETA / COURSE SYLLABUS (leto / year 2016/17)						
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 / elective			
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. dr. Primož Moravec			
Jeziki / Languages:	Predavanja / Lectures:		slovenski / Slovene			
	Vaje / Tutorial:		slovenski / Slovene			
Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:			Prerequisites:			
Vpis v letnik študija.			Enrolment in the programme.			
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 nadaljnjem 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>

Objectives and competences:

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

Predvideni študijski rezultati:

Intended learning outcomes:

Znanje in razumevanje: Poznavanje in razumevanje osnovnih algebrskih pojmov.

Uporaba: Uporaba teorije pri reševanju problemov.

Refleksija: Razumevanje teorije na podlagi primerov in uporabe.

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

Knowledge and understanding: Knowledge and understanding of basic algebraic concepts.

Application: Application of the theory in solving problems.

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

Načini ocenjevanja:

Delež (v %) /

Weight (in %)

Assessment:

Način (pisni izpit, ustno izpraševanje, naloge, projekt):

2 kolokvija namesto izpita iz vaj, izpit iz vaj, izpit iz teorije

ocene: 1-5 (negativno), 6-10 (pozitivno) (po Statutu UL)

50%

50%

Type (examination, oral, coursework, project):

2 midterm exams instead of written exam, written exam

oral exam

grading: 1-5 (fail), 6-10 (pass) (according to the Statute of UL)

Reference nosilca / Lecturer's references:

Primož Moravec:

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]

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]

MORAVEC, Primož. Groups of order p^5 and their unramified Brauer groups. Journal of algebra, ISSN 0021-8693, 2012, vol. 372, str. 420-427. [COBISS.SI-ID 16521049]