



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS						
Predmet:		Geometrija				
Course title:		Geometry				
Študijski program in stopnja Study programme and level		Študijska smer Study field		Letnik Academic year		Semester Semester
Matematika				3.		6.
Mathematics				3.		6.
Vrsta predmeta / Course type						
Univerzitetna koda predmeta / University course code:						
Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
45		30			105	6
Nosilec predmeta / Lecturer:		Dušan PAGON				
Jeziki / Languages:	Predavanja / Lectures:	SLOVENSKO/SLOVENE				
	Vaje / Tutorial:	SLOVENSKO/SLOVENE				
Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:			Prerequisites:			
Jih ni.			There are none.			
Vsebina:			Content (Syllabus outline):			
Hilbertov aksiomatski sistem za absolutno geometrijo: aksiomi povezave, urejenosti, skladnosti in zveznosti. Aksiom o vzporednicah in njegovi ekvivalenti. Aritmetični model dvorazsežne evklidske geometrije.			Hilbert's axiomatic system for absolute geometry: incidence axioms, ordering axioms, congruence axioms and continuity axioms. Parallel postulate and its equivalents. The arithmetic model of Euclidean plane.			
Aksiomi projektivne geometrije, Desarguesov izrek. Harmonični elementi. Homogene in nehomogene koordinate v projektivni ravnini. Projektivne transformacije.			Axioms of projective geometry, Desargues' theorem. Harmonic elements. Homogeneous and non-homogeneous coordinate systems in the projective plane. Projective transformations.			

Temeljni literatura in viri / Readings:

M. Hvidsten, Geometry with Geometry Explorer, McGraw-Hill, NY 2005
 H. S. M. Coxeter, Projective Geometry, Springer 2003
 C.-A. Faure, A. Frölicher, Modern Projective Geometry, Kluwer 2000
 D. Pagon, Osnove evklidske geometrije, DZS, Ljubljana 1995

Cilji in kompetence:

Študentje spoznajo aksiomatsko zasnovo evklidske geometrije ter osnove projektivne geometrije.

Objectives and competences:

Students get familiar with axiomatic approach to Euclidean geometry and the basic concepts of projective geometry.

Predvideni študijski rezultati:

Znanje in razumevanje:

- Razumevanje Hilbertovega aksiomatskega sistema za evklidsko geometrijo.
- Poznavanje osnovnih pojmov projektivne geometrije.

Prenesljive/ključne spretnosti in drugi atributi:

- Pridobljena znanja prispevajo k razumevanju ostalih predmetov s področja geometrije in topologije.

Intended learning outcomes:

Knowledge and Understanding:

- To understand the Hilbert axiomatic system for Euclidean geometry.
- To recognize the basic concepts of projective geometry

Transferable/Key Skills and other attributes:

- The obtained knowledge contributes to better understanding of other subjects in fields of geometry and topology.

Metode poučevanja in učenja:

- Predavanja
- Teoretične vaje

Learning and teaching methods:

- Lectures
- Theoretical exercises

Načini ocenjevanja:**Assessment:**

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

Pisni izpit – praktični del

Ustni izpit – teoretični del

Pisni izpit – praktični del se lahko nadomesti z dvema delnima testoma (sprotni obveznosti).

Delež (v %) /
Weight (in %)

50%

50%

Type (examination, oral, coursework, project):

Written exam – practical part

Oral exam – theoretical part

Written exam – practical part can be replaced by two partial tests (mid-term testing).

Reference nosilca / Lecturer's references:

1. MENCINGER, Matej, FERČEC, Brigita, OLIVEIRA, Regilene, PAGON, Dušan. Cyclicity of some analytic maps. Applied mathematics and computation, ISSN 0096-3003. [Print ed.], February 2017, vol. 295, str. 114-125.

<http://www.sciencedirect.com/science/article/pii/S0096300316305963>,

doi: [10.1016/j.amc.2016.09.026](https://doi.org/10.1016/j.amc.2016.09.026).

2. ALI, Shakir, DAR, Nadeem Ahmad, PAGON, Dušan. On Jordan $*$ -mappings in rings with involution. Journal of the Egyptian Mathematical Society (Print), ISSN 1110-256X, Jan. 2016, vol. 24, iss. 1, str. 15-19, doi: [10.1016/j.joems.2014.12.006](https://doi.org/10.1016/j.joems.2014.12.006).
3. MASLOVA, Natalia Vladimirovna, PAGON, Dušan. On the realizability of a graph as the Gruenberg-Kegel graph of a finite group. Sibirskie èlektronnye matematičeskie izvestiâ, ISSN 1813-3304, 2016, vol. 13, str. 89-100, doi: [10.17377/semi.2016.13.007](https://doi.org/10.17377/semi.2016.13.007).
4. PAGON, Dušan, REPOVŠ, Dušan, ZAICEV, Mikhail. Group gradings on finite dimensional Lie algebras. Algebra colloquium, ISSN 1005-3867, 2013, vol. 20, no. 4, str. 573578. <http://www.worldscientific.com/doi/abs/10.1142/S1005386713000540>.
5. PAGON, Dušan. On zeros of univariate polynomials over the quaternion algebra. Cayley journal of mathematics, 2013, vol. 2, no. 1, str. 27-45.
<http://www.domainsmoon.com/cjm/cjmfiles/cjm2013.html>.