Univerza v Mariboru

Fakulteta za naravoslovje in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Verižni ulomki**
Course title:	Continued Fractions

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Enovit magistrski študijski program druge stopnje Predmetni učitelj	**/**	**3. ali/or 4.**	**6. ali/or 8.**
Five-year master's degree program Subject Teacher	**/**		

Vrsta predmeta / Course type	Izbirni / Elective
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
30		**15**			**45**	**3**

Nosilec predmeta / Lecturer:	Daniel EREMITA

Jeziki / Languages:	**Predavanja / Lectures:**	**slovenski/Slovene**
	Vaje / Tutorial:	**slovenski/Slovene**

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Jih ni.	None.
Vsebina:	**Content (Syllabus outline):**

• Končni verižni ulomki	• Finite continued fractions
• Neskončni verižni ulomki	• Infinite continued fractions
• Periodični verižni ulomki	• Periodic continued fractions
• Diofantska aproksimacija	• Diophantine approximation
• Pellova enačba	• Pell's equation
• Faktorizacija z uporabo verižnih ulomkov	• Factoring using continued fractions
• Fermatov izrek o vsotah dveh kvadratov	• Fermat's theorem on sums of squares

Temeljni literatura in viri / Readings:

- Burton, D. M.: *Elementary Number Theory*, 7th ed., McGraw-Hill, New York, 2011
- Rosen, K. H.: *Elementary Number Theory and its applications*, 5th ed., Pearson/Addison Wesley, Boston, 2005
- Grasselli, J.: *Diofantski približki*, DMFA, Ljubljana 1992
- Grasselli, J.: Elementarna teorija števil, Ljubljana: DMFA, 2009.
- Rockett, A. M., Szüsz, P.: *Continued Fractions*, World Scientific Publishing Co. Pte. Ltd., Singapore, 1992

Cilji in kompetence:	**Objectives and competences:**
Razumevanje osnovnih konceptov in rezultatov klasične teorije navadnih verižnih ulomkov.	Understanding basic concepts and results of classical theory of simple continued fractions.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • konceptov in rezultatov klasične teorije navadnih verižnih ulomkov • nekaterih aplikacij verižnih ulomkov Prenesljive/ključne spretnosti in drugi atributi: • pridobljena znanja se dopolnjujejo z znanji iz drugih področij teorije števil in z znanji s področja algebre, kombinatorike, analize, računalništva, …	Knowledge and understanding: • concepts and results of classical theory of simple continued fractions • some applications of continued fractions. Transferable/Key Skills and other attributes: • the obtained knowledge supplements with the knowledge of other fields of number theory and also with the knowledge of algebra, combinatorics, analysis, computer science, …

Metode poučevanja in učenja:	**Learning and teaching methods:**

• Predavanja • Seminarske vaje • Individualno delo	• Lectures • Tutorial • Individual work

Načini ocenjevanja: Delež (v %) / Weight (in %) **Assessment:**

Način (pisni izpit, ustno izpraševanje, naloge, projekt): Pisni test – praktični del Izpit (ustni) – teoretični del Vsaka izmed naštetih obveznosti mora biti opravljena s pozitivno oceno. Pozitivna ocena pri pisnem testu je pogoj za pristop k izpitu.	50% 50%	Type (examination, oral, coursework, project): Written test – practical part Exam (oral) – theoretical part Each of the mentioned commitments must be assessed with a passing grade. Passing grade of the written test is required for taking the exam.

Reference nosilca / Lecturer's references:

1. EREMITA, Daniel. Biderivations on tensor products of algebras. *Communications in algebra*, ISSN 0092-7872, 2018, vol. 46, iss. 4, str. 1722-1726. http://doi.org/10.1080/00927872.2017.1355375, doi: 10.1080/00927872.2017.1355375.

2. EREMITA, Daniel. Commuting traces of upper triangular matrix rings. *Aequationes mathematicae*, ISSN 0001-9054, June 2017, vol. 91, iss. 3, str. 563-578. http://doi.org/10.1007/s00010-016-0462-7, doi: 10.1007/s00010-016-0462-7.

3. EREMITA, Daniel. Biderivations of triangular rings revisited. *Bulletin of the Malaysian Mathematical Society*, ISSN 0126-6705, Apr. 2017, vol. 40, iss. 2, str. 505-522. http://doi.org/10.1007/s40840-017-0451-6, doi: 10.1007/s40840-017-0451-6.

4. EREMITA, Daniel. Functional identities in upper triangular matrix rings. *Linear Algebra and its Applications*, ISSN 0024-3795. [Print ed.], 2016, vol. 493, str. 580-605. http://dx.doi.org/10.1016/j.laa.2015.12.022.

5. EREMITA, Daniel. Functional identities of degree 2 in triangular rings revisited. *Linear and Multilinear Algebra*, ISSN 0308-1087, 2015, vol. 63, iss. 3, str. 534-553. http://dx.doi.org/10.1080/03081087.2013.877012.