UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	**Analiza II**
Course title:	Analysis II

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Matematika		2.	3.
Mathematics		2.	3.

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
60		45			135	8

Nosilec predmeta / Lecturer: Daniel Eremita

Jeziki / Languages:	Predavanja / Lectures:	SLOVENSKO/SLOVENE
	Vaje / Tutorial:	SLOVENSKO/SLOVENE

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Prerequisits:

Jih ni.	There are none.

Vsebina:	**Content (Syllabus outline):**
Odvod: geometrijski pomen, pravila za odvajanje; izreki o srednji vrednosti, višji odvodi, Taylorjeva formula, lokalni ekstremi, L'Hospitalovo pravilo; konveksnost. Integral: določeni integral, Riemannove in Darbouxjeve vsote; nedoločeni integral; Newton-Leibnizova formula; uporaba integrala; posplošeni integrali. Funkcijska zaporedja in vrste: konvergenca po točkah, enakomerna konvergenca; realne in kompleksne potenčne vrste; Taylorjeve vrste. Če bo čas dopuščal, bomo obravnavali še	Differentiation:geometric interpretation, differentiation formulas; mean value theorems, higher derivatives, Taylor's formula, local extrema, L'Hospital rule; convexity. Integral: definite integral, Riemann and Darboux sums; indefinite integral; Newton-Leibniz formula; applications of integrals; improper integrals. Sequences and series of functions: pointwise convergence, uniform convergence; real and complex power series; Taylor series.

Fourierjeve vrste.	If time permits, we shall also consider Fourier series.

Temeljni literatura in viri / Readings:

M. Dobovišek, M. Hladnik, M.Omladič, Rešene naloge iz analize, DMFA, Ljubljana, 1980.
E. Fischer, Intermediate real analysis, Springer, 1983.
J. M. Howie, Real analysis, Springer, 2001.
B. Hvala, Zbirka izpitnih nalog iz analize, DMFA, Ljubljana, 1996.
F. Morgan, , Real analysis, AMS, 2005.
M. A. Robdera, A concise approach to mathematical analysis, Springer, 2003.
W. Rudin, Principles of mathematical analysis, McGraw Hill Book Co., 1976.
I. Vidav, Višja matematika I, II, DZS, Ljubljana, 1974.

Cilji in kompetence: / Objectives and competences:

Razumevanje osnovnih pojmov v zvezi s funkcijami ene spremenljivke.	Understanding basic concepts concerning functions of one variable.

Predvideni študijski rezultati: / Intended learning outcomes:

Znanje in razumevanje: • Odvoda. • Integrala. • Funkcijskih zaporedij in vrst. Prenesljive/ključne spretnosti in drugi atributi: • Pridobljena znanja so podlaga za večino predmetov v nadaljevanju študija.	Knowledge and Understanding: • Differentiation • Integration • Sequences and series of functions. Transferable/Key Skills and other attributes: • The obtained knowledge is a basis for most of the later subjects.

Metode poučevanja in učenja: / Learning and teaching methods:

• Predavanja • Teoretične vaje	• Lectures • Theoretical exercises

Načini ocenjevanja: / Assessment:

Izpit:	Delež (v %) / Weight (in %)	Exams:
Pisni izpit – problemi, Ustni izpit – teorija. Vsaka izmed naštetih obveznosti mora biti opravljena s pozitivno oceno. Opravljen pisni izpit – problemi je pogoj za pristop k ustnemu izpitu – Teorija. Pisni izpit – problemi se lahko nadomesti z dvema delnima testoma	50% 50%	Written exam – problems, Oral exam – theory. Each of the mentioned assessments must be assessed with a passing grade. Passing grade of written exam – problems is required to take the oral exam – theory. Written exam – problems can be repalced with two mid-term tests.

(sprotne obveznosti).		
Reference nosilca / Lecturer's references:		

1. 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. [COBISS.SI-ID 17044057]

2. EREMITA, Daniel, GOGIĆ, Ilja, ILIŠEVIĆ, Dijana. Generalized skew derivations implemented by elementary operators. *Algebras and representation theory*, ISSN 1386-923X, 2014, vol. 17, iss. 3, str. 983-996. http://dx.doi.org/10.1007/s10468-013-9429-8. [COBISS.SI-ID 17043545]

3. EREMITA, Daniel. Functional identities of degree 2 in triangular rings. *Linear Algebra and its Applications*, ISSN 0024-3795. [Print ed.], 2013, vol. 438, iss 1, str. 584-597. http://dx.doi.org/10.1016/j.laa.2012.07.028. [COBISS.SI-ID 16528217]

4. EREMITA, Daniel, ILIŠEVIĆ, Dijana. On (anti-)multiplicative generalized derivations. *Glasnik matematički. Serija 3*, ISSN 0017-095X, 2012, vol. 47, no. 1, str. 105-118. http://dx.doi.org/10.3336/gm.47.1.08. [COBISS.SI-ID 16341849]

5. BENKOVIČ, Dominik, EREMITA, Daniel. Multiplicative Lie n-derivations of triangular rings. *Linear Algebra and its Applications*, ISSN 0024-3795. [Print ed.], 2012, vol. 436, iss 11, str. 4223-4240. http://dx.doi.org/10.1016/j.laa.2012.01.022. [COBISS.SI-ID 16278361]