



UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet	Analiza II
Course name	Analysis II

Študijski program in stopnja Study program and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Fizika in Astrofizika I. stopnja	/	2	1
Physics and Astrophysics I. level	/	2	1

Vrsta predmeta / Course type	obvezni / mandatory
Univerzitetna koda predmeta / University course code	1FAF07N

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Lab. work	Teren. vaje Field work	Samost. delo Indiv. work	ECTS
30	/	30	/	/	120	6

Nosilec predmeta / Lecturer	Prof. dr. Andriy Zagorodnyuk	
Jeziki / Languages	Predavanja / Lectures	slovenščina / english
	Vaje / Tutorial	slovenščina / english

Pogoji za opravljanje študijskih obveznosti

Vpis v tekoče študijsko leto. Za študente v okviru študentskih izmenjav bo izpolnjevanje pogojev preverila Študijska komisija FN

Prerequisites

Enrollment into the current study year. For the exchange students, meeting of the course prerequisites will be checked by the Study committee of the school

Vsebina	Syllabus outline
1. KOMPLEKSNE ŠTEVILKE. Definicije in algebraične lastnosti, geometrijski pomen, osnovna topologija	1. COMPLEX NUMBERS. Definitions and Algebraic Properties, Geometric meaning, Elementary Topology
2 DIFERENCIALNI RAČUN. Limita in kontinuiteta, diferenciacija in holomorfnost, Cauchy-Rimanove enačbe	2 DIFFERENTIATION. Limits and Continuity, Differentiability and Holomorphicity, The Cauchy-Riemann Equations
3 PRIMERI FUNKCIJ. Neskončnost in navzkrižno razmerje, eksponentialne in trigonometrične funkcije, logaritem in kompleksna eksponenta	3 EXAMPLES OF FUNCTIONS. Infinity and the Cross Ratio, Exponential and Trigonometric Functions, The Logarithm and Complex Exponentials
4 INTEGRALNI RAČUN. Opredelitev in osnovne lastnosti, nedoločeni integrali (antiderivativ), Košijev izrek, Košijeva integralna formula.	4 INTEGRATION. Definition and Basic Properties, Antiderivatives, Cauchy's Theorem, Cauchy's Integral Formula.
5 POSLEDICE KOŠIJEVEGA IZREKA	5 CONSEQUENCES OF CAUCHY'S THEOREM



6 POTENČNA VRSTA. Zaporedja in popolnost, vrste, funkcionalna zaporedja in funkcije, regije konvergence	6 POWER SERIES. Sequences and Completeness, Series, Sequences and Series of Functions, Regions of Convergence
7 TEJLORJEVE IN LORANTOVE VRSTE Potenčna vrsta in holomorfne funkcije, klasifikacija ničl in načelo identitete, Loranova vrsta	7 TAYLOR AND LAURENT SERIES Power Series and Holomorphic Functions, Classification of Zeros and the Identity Principle, Laurent Series
8. IZOLIRANE SINGULARNOSTI IN IZREK O REZIDUIH, Klasifikacija singularnosti, ostanki, načelo argumentov in Rušijev izrek	8. ISOLATED SINGULARITIES AND THE RESIDUE THEOREM, Classification of Singularities, Residues, Argument Principle and Rouché's Theorem

Temeljni literatura in viri / Basic readings

- Matthias Beck, Gerald Marchesi, Dennis Pixton, and Lucas Sabalka, *A First Course in Complex Analysis*, (2002-2018), available online at <http://math.sfsu.edu/beck/complex.html>
- R. Courant, *Differential and Integral Calculus I*. Blackie & Son Ltd (1961).
- B. Demidovich et al, *Problems in Mathematical Analysis*, Mir Publishers (1972).

Cilji in kompetence	Objectives and competences
Osnovni cilj predmeta je poučiti študente o načinih kompleksne analize ter najbolj pomembnih aplikacijah.	The primary goal of this course is to give students the knowledge of methods of complex analysis and its relevant applications.

Predvideni študijski rezultati	Intended learning outcomes
Študentje se bodo spoznali temelji kompleksne analize ter uporabo residuumov za računanje integralov funkcij realnih spremenljivk.	Students will get familiar with the foundations of complex analysis and will learn how to apply residues to calculate the integrals of real variables.

Metode poučevanja in učenja	Learning and teaching methods
- predavanja - računske vaje	- lectures - tutorial

Načini ocenjevanja	Utež / Weight (%)	Assessment
- pisni izpit	Opravljen pisni izpit je predpostavka za ustni/ Passed written exam is a prerequisite for oral	- written exam
- ustni izpit	100	- oral exam

Reference nosilca / references of the course principal

Univerza v Novi Gorici
Fakulteta za naravoslovje



University of Nova Gorica
School of science

Prof. dr. Andriy Zagorodnyuk je redni profesor za področje fizike na Univerzi v Novi Gorici.
Andriy Zagorodnyuk is a full professor of physics at the University of Nova Gorica.