Study programmes: BACHELOR STUDIES - Mathematics

Course name: CODE M2.15 - Complex analysis B

Lecturers: Miodrag Mateljević, Vladimir Božin, Miljan Knežević

Status: Compulsory

ECTS: 5

Attendance prerequisites: Analysis 1, Analysis 2.

Course aims: Acquisition of general knowledge in complex analysis.

Course outcome: Upon completion of the course, the student has basic knowledge on geometric principles and basic theoretical concepts of complex analysis as well as about basic properties of harmonic functions. It also possesses operational knowledge of basic applications in complex analysis.

Course content: Definition and properties of meromorphic functions. The Mittag-Leffler theorem. Real harmonic function. Complex harmonic function. Poisson formula. The Fourier series. Dirichlet problem. The argument principle. The Rouché theorem. The maximum and minimum principle. The Schwarz lemma. The Schwarz reflection principle. Conformal isomorphism. The Riemann mapping theorem. The Runge approximation theorem. Holomorphic function as uniform limit of polynomials.

Literature:

1. Miodrag Mateljević: Kompleksne funkcije 1&2, Društvo matematičara, Beograd, 2006.
2. Б.В.Шабат: Введение в комплекснии анализ, Част 1, Наука, Москва 1976.
3. L. Ahfolrs, Complex analysis, McGraw Hill, 1979.
4. W. Rudin, Real and complex analysis, McGraw Hill, 1974.

Number of hours: 4	**Lectures**: 2	**Tutorials**: 2	**Laboratory**: -	**Research**: -

Teaching and learning methods: Frontal / Tutorial

Assessment (maximal 100 points)

Course assignments	points	Final exam	points
Lectures	-	Written exam	30
Exercises / Tutorials	-	Oral exam	40
Colloquia	15+15	Written-oral exam	-
Essay / Project	-		