Study programmes: BACHELOR STUDIES - Mathematics	
Course name: CODE M2.31S - Complex analysis	
Lecturers: Miodrag Mateljević,Vladimir Božin, Miljan Knežević	
Status: Compulsory	
ECTS: 5	
Attendance prerequisites: Analysis 1	
Course aims: Acquisition of general knowledge in complex analysis.	
Course outcome: Upon completion of the course, the student has basic knowledge on complex analysis. It also possesses operational knowledge of basic applications in complex analysis.	
Course content: Field of complex numbers. Topology of complex plane **C**. Convergence in **C**. Stereographic projection. Basic trigonometric formulae. Polar form and the basic branch of the argument of a non-zero complex number. Differentiable functions and Cauchy-Riemannian equations. Analytic (holomorphic) functions. Geometric meaning of the derivative. Conformal mappings. Elementary functions and Möbius transformations. Curves, contours and simply connected domains. Complex integration and independence of path. Cauchy-Goursat theorem. Cauchy's integral theorem and formula - local versions. Cauchy's integral formula for derivatives. Power series. Morera's theorem. Taylor's power series theorem and applications - Cauchy's inequalities and Liuville's theorem. The fundamental theorem of algebra. Laurent's series. Definition and types of isolated singularities. Point as an isolated singularity - characterizations. Definition of a residuum and applications. Evaluation of some real definite integrals by contour integration. Maximum modulus theorem and applications. Basic concepts of the Fourier analysis. The Fourier transform.	

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. Ahlfors, Complex analysis, McGraw Hill, 1979.

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	-		