Study programmes: PhD – Mathematics

Course name: Complex manifolds

Lecturers: Mirjana Đ. Đorić, Miljan Knežević, Miroslava Antić, Zoran P. Rakić, Srđan N. Vukmirović

Status: Optional

ECTS: 9

Attendance prerequisites: Riemannian geometry A

Course aims: Acquisition of general and specific knowledge in theory of complex manifolds. Preparing student for individual scientific work: studying of literature in theory of complex manifolds and gradually including student for individual research work.

Course outcome: Upon completion of the course, the student has necessary knowledge about: complex, almost complex, Hermite, Kähler, almost Kähler manifolds, holomorphic sectional curvature, curvature of Kähler manifolds, complex space forms, submanifolds of Kähler manifolds. Student is qualified to individual understanding basic examples and solving problems from this area of Riemannian geometry. Also, student is qualified for individual studying of scientific papers from this area.

Course content: Holomorphic functions of one and several complex variables. Definition and example: complex manifold, almost complex manifold, Hermite manifolds, Kähler manifolds, almost Kähler manifolds, Holomorphic sectional curvature. Curvature of Kähler manifold. Complex space forms. Submanifolds of Kähler manifolds.

Literature:

1. S. Kobayashi and K. Nomizu, Foundations of Differential Geometry I, II, 1969, Interscience, New York.
2. K. Yano, Differential Geometry on Complex and Almost Complex Spaces, 1965, A Pergamon Press Book.
3. F. Zheng, Complex Differential Geometry, 2000, AMS/IP Studies in Advanced Mathematics.
4. K. Yano, M. Kon, Structures on Manifolds, 1984, World Scientific, Series in PureMathematics, vol. 3.

Number of hours: 10	**Lectures: 4**	**Tutorials: -**	**Laboratory: -**	**Research: 6**

Teaching and learning methods: Lectures/ Tutorials

Assessment (maximal 100 points)

Course assignments	**points**	**Final exam**	**points**
Lectures	-	Written exam	-
Exercises / Tutorials	20	Oral exam	60
Colloquia	-	Written-oral exam	-
Essay / Project	20		