

Study programmes: PhD – Mathematics				
Course name: Transformation groups				
Lecturers: Zoran P. Rakić, Mirjana Đ. Đorić, Srđan N. Vukmirović				
Status: Optional				
ECTS: 9				
Attendance prerequisites: Groups in geometry A, Groups in geometry B				
Course aims: Acquisition of general and specific knowledge about transformation groups on manifolds. Preparing student for individual scientific work: studying of literature from this theory and gradually including student for individual research work.				
Course outcome: Upon completion of the course, the student has necessary knowledge about: G-structures, symplectic and contact structures, the group of isometries of a Riemannian manifold, the group of automorphisms of a complex manifolds, compact Einstein-Kahler manifolds, Chern classes, the group of affine transformations of an affinely connected manifold, Cartan, projective and conformal connections. Student is qualified to individual understanding basic examples and solving problems from this area. Student is qualified to individual understanding basic examples and solving problems from this area. Also, student is qualified for individual studying of scientific papers from this area.				
Course content: Automorphisms of G-structures. Symplectic structures. Contact structures. The group of isometries of a Riemannian manifold. The group of automorphisms of a complex manifold. Holomorphic vector fields and holomorphic forms. Compact Einstein-Kahler manifolds. Chern classes. The group of affine transformations of an affinely connected manifold. Affine transformations of Riemannian manifolds. Cartan connections. Projective and conformal connections. Projective and conformal structures.				
Literature:				
1. S. Kobayashi, Transformation Groups in Differential Geometry, 1972 Springer-Verlag, Berlin-Heidelberg-New York				
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			