

Study programmes: PhD studies – Astronomy and astrophysics				
Course name: Differential geometry				
Lecturers: Vladica S. Andrejić, Miroslava Ž. Antić, Ivan Dimitrijević, Mirjana Đ. Đorić, Zoran P. Rakić, Tijana Šukilović, Srđan N. Vukmirović				
Status: Optional				
ECTS: 9				
Attendance prerequisites:-				
Course aims: Acquiring general and particular knowledge in foundations of differential geometry and global theory of curves and preparing students for the more advanced courses in this topic.				
Course outcome: At the end of the course students will understand the basic notions of the differential geometry, by studying them in numerous examples. Motivated by the approach in the 3-dimensional Euclidean space, students will be able to understand the basic notions in the abstract theory of manifolds and will be ready for more thorough studying of this and related topics. Also, beside studying the numerous important examples, students will be able for independent studies and for applying the acquired knowledge in other topics.				
Course content: Global theory of curves. Rotation index of planar curves. Total curvature. Fary-Milnor theorem. Notion and examples of smooth manifolds. Affine connection and covariant derivatives. Geodesic lines. Curvature. Gauss-Bonnet theorem.				
Literature:				
1. M. Antić, <i>Diferencijalna geometrija mnogostrukosti</i> , Matematički fakultet, Beograd, 2015.				
2. N. Blažić, N. Bokan, <i>Uvod u diferencijalnu geometriju</i> , VESTA, Matematički fakultet, Beograd 1996.				
3. S. Kobayashi, K. Nomizu- <i>Foundations of Differential Geometry</i> , Interscience Publishers, New York- London, 1963-1969.				
4. A. Pressley, <i>Elementary Differential Geometry</i> , Springer, London-Berlin-Heidelberg, 2001.				
5. B. O'Neill, <i>Elementary Differential Geometry</i> , Academic Press, New York-London, 1966.				
6. А. С. Мищенко, Ю. П. Соловьев, А. Т. Фоменко, <i>Сборник задач по дифференциальной геометрии и топологии</i> , Физматлит 2004,				
Number of hours: 10	Lectures: 4	Tutorials: -	Labaratory:-	Research: 6
Teaching and learning methods: Lectures / Tutorials				
Assessment (maximal 100 points)				
Course assignments	points	Final exam	points	
Lectures	30	Written exam		
Exercises / Tutorials		Oral exam	70	
Colloquia				
Essay / Project				