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| Study programme(s): Mathematics (MA), Applied Mathematics (MB), Master in Mathematics Teaching(MP) | | | |
| Level: master | | | |
| Course title: Differential Geometry (MA-19) | | | |
| Lecturer: Sanja V. Konjik | | | |
| Status: elective | | | |
| ECTS: 5 | | | |
| Requirements: none | | | |
| Learning objectives Acquiring knowledge and skills in the selected topics of differential geometry. | | | |
| Learning outcomes Student capable of applying the acquired knowledge and skills to specific problems. | | | |
| Syllabus <i>Theoretical classes</i> Submanifolds of \mathbb{R}^n , differentiable manifolds, the partition of unity, the tangent space, the tangent vector, differentiation, the tangent bundle, vector bundles, the vector field, tensors in vector spaces, tensor bundle and tensor fields, the exterior algebra, differential forms, the exterior derivative, orientation, integration, the Stokes theorem, hypersurfaces, the curvature, the covariant derivative, geodesics. <i>Practical classes</i> Application of knowledge gained in the theoretical classes in solving practical problems (exercises). | | | |
| Literature 1. Kunzinger, M., Differential Geometry 1, Lecture notes, University of Vienna, 2008. 2. Abraham, R., Marsden, J. E., Foundations of Mechanics, 2nd edition, Addison-Wesley Publishing Company, Inc., USA, 1978. 3. Abraham, R., Marsden, J. E., Ratiu, T., Manifolds, Tensor Analysis, and Applications, 2nd edition, Springer-Verlag, New York, 1988. 4. Boothby, W. M., An Introduction to Differentiable Manifolds and Riemannian Geometry, Revised 2nd edition, Elsevier Science, USA, 2003. 5. Dragović, V., Milinković, D., Analiza na mnogostrukostima, Matematički fakultet, Beograd, 2003. | | | |
| Weekly teaching load | | | Other: 0 |
| Lectures: 3 | Exercises: 1 | Other forms of teaching: 0 | Student research: 0 |
| Teaching methodology Oral presentations given by the teacher, exchange of opinions between the teacher and students, problem solving, use of computers in teaching, group work, students' individual work. | | | |
| Grading (maximum number of points 100) | | | |
| Pre-exam obligations | points | Final exam | points |
| Activity during lectures | 10 | Written exam | |
| Practical classes | | Oral exam | 50 |
| Colloquia | | | |
| Seminars | 40 | | |