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| 1. Course title: Geometry of curves and surfaces, lecture | | | | | |
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| 2. Code: | | 3. Type (lecture, practice etc.): lecture | | | |
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| 4. Contact hours: 2 hours per week | | 5. Number of credits (ECTS): 2 | | | |
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| 6. Preliminary conditions (max. 3):  Geometry 2 lec+disc. | | | | | |
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| 7. Announced:  fall semester,  spring semester, both | | | | | |
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| 8. Limit for participants: 20 | | | | | |
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| 10. Responsible teacher (faculty, institute and department):  János Ruff, PhD. | | | | | |
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| 11. Teacher(s) and percentage: | | János Ruff | | 100% | |
| Ágota H. Temesvári | | 100% | |
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| 12. Language:English | | | | | |
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| 13. Course objectives and/or learning outcomes:  Objectives: The main aim of the course is to introduce the basic ideas of differential geometry. | | | | | |
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| 14. Course outline  Week 1 Vector-scalar functions (limit, continuous functions, differentialable functions)  Week 2: Concept of curves, parametrization, arc length.  Week 3: The moving trihedral, their planes, tangent vector, osculating plane and circle.  Week 4: Curvature and torsion.  Week 5: Frenet-Serret formulas. Fundamental theorem of space curves.  Week 6: Determining the curvature and torsion for arbitrary parametrization of a curve.  Week 7: Special curves.  Week 8: Surfaces, curves ont he surfaces, parametric curves, tangent plane, normal of the surface.  Week 9: Curvature, normal curvature.  Week 10: Meusnier’s theorem.  Week 11: Geodetic curves.  Week 12: First and second fundamental forms.  Week 13: Euler’s theorem, Gaussian curvature. | | | | | |
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| 15. Mid-semester works  Attending lectures is highly recommended. | | | | | |
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| 16. Course requirements and grading  Written exam is based on lectures, accessible electronic sources and lecture materials.  Grades:  0–50% fail  51–65% acceptable  66–75% average  76–90% good  91–100% excellent | | | | | |
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| 17. List of readings  1. Pressley, A.N.: Elementary Differential Geometry, Springer Verlag, London, 2010. | | | | | |
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| 18. Recommended texts, further readings | | | | | |
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| **Date** | 13 April, 2017 | **Prepared by** | János Ruff | | |
| responsible teacher | | |
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| **Endorsed by** | | |  | | |
| László Tóth, PhD program supervisor | | |