|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1. Course title: Problem Solving Seminar | | | | | |
|  | | | | |
| 2. Code: | | 3. Type (lecture, practice etc.): discussion | | | |
|  | | | | |
| 4. Contact hours: 2 hours per week | | 5. Number of credits (ECTS): 2 | | | |
|  | | | | |
| 6. Preliminary conditions (max. 3): | | | | | |
|  | | | | |
| 7. Announced:fall semester, spring semester, both | | | | | |
|  | | | | |
| 8. Limit for participants: 40 | | | | | |
|  | | | | |
| 10. Responsible teacher (faculty, institute and department):  János Ruff, PhD | | | | | |
|  | | | | |
| 11. Teacher(s) and percentage: | | János Ruff | | 100% | |
|  | |  | |
| 12. Language:English | | | | | |
|  | | | | |
| 13. Course objectives and/or learning outcomes:  Objectives:  The main aim of the course to improve problem solving skills by summarizing problem solving strategies. | | | | | |
|  | | | | |
| 14. Course outline  Week 1: Steps of problem solving.  Week 2: Inductive approach to problems.  Week 3: Generalization, specialization, analogy.  Week 4: Mathematical induction.  Week 5: Analogies of planar geometric problems in the 3-space.  Week 6: Polygons, polyhedra.  Week 7: Test  Week 8: Heuristics.  Week 9: Forms of proofs.  Week 10: Indirect proofs.  Week 11: Reformulations of problems, the importance of new approach.  Week 12: Classical problems from combinatorics and graph theory for improving skills in early childhood.  Week 13: Test | | | | | |
|  | | | | |
| 15. Mid-semester works  Attending lectures is highly recommended. 2 midterm tests. | | | | | |
|  | | | | |
| 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 | | | | | |
|  | | | | |
| 17. List of readings   1. Gy. Pólya: How to solve it? , Princeton University Press, 1973. | | | | | |
|  | | | | |
| 18. Recommended texts, further readings | | | | | |
|  | | | | |
| **Date** | 13 April, 2017 | **Prepared by** | János Ruff | | |
| responsible teacher | | |
|  | | | | |
| **Endorsed by** | | |  | | |
| László Tóth, PhD program supervisor | | |