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| Study programmes: Doctoral studies of the studying program Mathematics - Applied Mathematics | | | | |
| Course name: 3M533 – Metaheuristic methods | | | | |
| Lecturers: Zorica Stanimirović | | | | |
| Status: Optional | | | | |
| ECTS: 9 | | | | |
| Attendance prerequisites: None | | | | |
| Course aims: Acquisition of general, specific, and practical knowledge in metaheuristic methods for solving real-life problems. | | | | |
| Course outcome: At the end of the course, a student will gain theoretical and practical knowledge in different metaheuristic methods. A student will be able to design and implement adequate metaheuristic methods for solving optimization problems. | | | | |
| Course content: <ul style="list-style-type: none"> • Metaheuristic methods: definition, properties, and classification. • Local Search. Simulated Annealing. Tabu Search. Variable Neighborhood Search. Greedy Adaptive Randomized Search Procedure. Evolutionary Algorithms. Particle Swarm Optimization. Bee Colony Optimization. Ant Colony Optimization. • Modifications and extensions of basic concept of metaheuristics. Hybridization of two or more metaheuristic methods. Hybridization of metaheuristics and exact methods. Metaheuristics. • Implementation of metaheuristic methods for solving a given optimization problem and performance comparison with existing methods from the literature. Application of metaheuristic method to real-life problems. | | | | |
| Literature: Ribeirio C .C., Hansen P., <i>Essays and surveys in Metaheuristics</i> , Kluwer Academic Publishers, Boston - Dordrecht – London, 2002. Glover F., Kochenberger G.A., <i>Handbook of Metaheuristics</i> , Kluwer Academic Publishers, Boston Dordrecht-London, 2003. Talbi E.G., <i>Metaheuristics-from design to implementation</i> . Willey & Sons Publications, 2009. | | | | |
| Number of hours: 10 | Lecures: 4 | Excercises: - | Laboratory: - | Research: 6 |
| Teaching and learning methods: Frontal teaching/ Group work/ Practical work | | | | |
| Assessment (maximal 100 points) | | | | |
| Course assignments | points | Final exam | | points |
| Seminars | 30 | Written exam | | |
| Exercises / Tutorials | | Oral exam | | 70 |
| Colloquia | | | | |