Heuristiska sökmetoder, 8.0 hp

Heuristic Search Methodologies, 8.0 credits

Forskarutbildningskurs

MAI0083

Matematiska institutionen

Gäller från: Första halvår 2023

Fastställd av
Prefekt

Fastställandedatum

Diarienummer

Behörighetskrav

Undergraduate courses in mathematics, optimization and computer science.

Kursinnehåll

- Common concepts for metaheuristics: optimization models and methods, representation, objective function, constraint handling, performance analysis.
- Single-solution based metaheuristics: fitness landscapes, local search, simulated annealing, tabu search, variable neighbourhood search.
- Population-based metaheuristics: evolutionary algorithms, swarm intelligence.
- Metaheuristics for multiobjective optimization: multiobjective optimization, fitness assignment strategies, performance evaluation and Pareto front structure.
- Hybrid metaheuristics: combining metaheuristics with mathematical programming, constraint programming, machine learning and data mining. Parallel design of metaheuristics.

Undervisnings- och arbetsformer

Seminars where the participants present the course topics and solutions to selected exercises from the book. Implementation projects on applications of metaheuristics.

Examination

Active participation with presentation of course topics, solutions to exercises and results of projects.

Betygsskala

Engradig skala

Kurslitteratur

Metaheuristics: from design to implementation, E.-G. Talbi, Wiley, 2009.