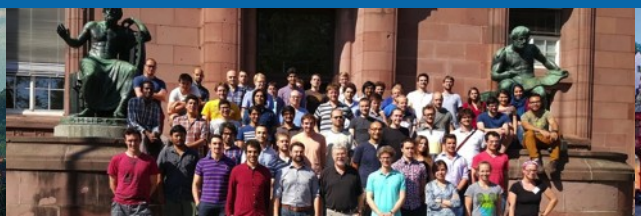
Systems Control and Optimization Laboratory

IMTEK, Faculty of Engineering, University of Freiburg


Summer School (3 ECTS) on

Numerical Optimization Software

July 25-29, 2016
University of Freiburg

Lecturer: Hans Mittelmann
Arizona State University

The aim of this intensive course is to give hands-on practical knowledge with computational tools for numerical optimization, covering both continous and discrete optimization problems.

Contents: The course consists of lectures, computer exercises and an optional project. Participants are asked to bring laptops, preferably running Linux. All solvers can alternatively be accessed online via the NEOS server. Topics: *Continuous Optimization:* Unconstrained Optimization, Nonlinear Least Squares, Nonlinear Systems, LP, QP, SOCP, SDP, NLP, modeling languages AMPL, CVX, automatic differentiation. *Discrete Optimization:* MILP, MINLP, Travelling Salesman Problems (TSP), Quadratic Assignment Problems (QAP). *Open Source Software:* SCIP, CLP, CBC, SeDuMi, SDPT3, IPOPT. *Commercial Software:* CPLEX, Gurobi, XPRESS, KNITRO.

Prerequisites, Workload and Evaluation: The course requires solid mathematical background, computer skills, and basic knowledge in optimization. It is recommended for both industrial and academic researchers as well as for master and PhD students of engineering, computer science, mathematics, and physics. In the week after the course, participants can work independently on projects, on which the final course evaluation (3 ECTS) is based.

Location and Schedule: The course takes place from Monday to Friday, July 25-29, 2016, from 9:00-18:00, in the main historical university building in the city center of Freiburg (Kollegiengebäude I, HS 1098, Platz der Universität 3, D-79098 Freiburg). Project reports shall be handed in two weeks after the course.

Registration: Participation in the course is limited to 60 places. A cost contribution of 150 Euro to cover coffee breaks and social events will be required by external participants. To apply for participation, please fill in the form at http://goo.gl/forms/aJLliXF7zK before May 30, 2016.

Organizers: The summer school is organized by Moritz Diehl, Gianluca Frison, Dimitris Kouzoupis, Adrian Bürger, Christine Paasch, and the team of the systems control and optimization laboratory. Support by the EU via the ERC Project HIGHWIND (259 166) and the ITNs TEMPO (607 957) and AWESCO (642 682) is gratefully acknowledged.

http://www.syscop.de/teaching