Course content for International Master program „Mathematical modeling, computation and optimization“

Course name	Algorithms for Convex Optimization
Contents and Objectives	Content: Basic methods in convex smooth and nonsmooth optimization (gradient-, subgradient-, cutting plane-, bundle-methods, semidefinite optimization), their computational complexity, applications. Objectives of the course: In the realm of convex optimization it should enable to choose, adapt or develop suitable optimization methods for suitably formulated optimization problems and to analyze them competently with respect to convergence, computational efficiency and solution properties.
Teaching	This course consists of lectures (2h/week)
Prerequisites	Basic notions of Analysis, Linear Algebra, basic subdifferential calculus for nonsmooth convex functions
Examination	Oral exam (30 minutes)
Credits	4 ECTS points
Frequency	This course is given at least every second year.
Workload	The estimated total working time for this course is 120 hours.
Duration	This course is given during one semester.