Module MA-INF 1102	**Combinatorial Optimization**		
Workload 270 h	**Credit points** 9 CP	**Duration** 1 semester	**Frequency** at least every year
Module coordinator	Prof. Dr. Jens Vygen		
Lecturer(s)	Prof. Dr. Jens Vygen, Prof. Dr. Norbert Blum, Prof. Dr. Stefan Hougardy, Prof. Dr. Marek Karpinski, Prof. Dr. Bernhard Korte, Prof. Dr. Stephan Held		
Classification	**Programme** M. Sc. Computer Science	**Mode** Optional	**Semester** 1. or 2.
Technical skills	Advanced knowledge of combinatorial optimization. Modelling and development of solution strategies for combinatorial optimization problems		
Soft skills	Mathematical modelling of practical problems, abstract thinking, presentation of solutions to exercises		
Contents	Matchings, b-matchings and T-joins, optimization over matroids, submodular function minimization, travelling salesman problem, polyhedral combinatorics, NP-hard problems		
Prerequisites	none		

Format

Teaching format	**Group size**	**h/week**	**Workload[h]**	**CP**
Lecture	60	4	60 T / 105 S	5.5
Exercises	30	2	30 T / 75 S	3.5

T = face-to-face teaching; S = independent study

Exam achievements	Oral exam (graded)
Study achievements	Successful exercise participation (not graded)
Forms of media	
Literature	• B. Korte, J. Vygen: Combinatorial Optimization: Theory and Algorithms. Springer, 5th edition, 2012 • A. Schrijver: Combinatorial Optimization: Polyhedra and Efficiency. Springer 2003 • W. Cook, W. Cunningham, W. Pulleyblank, A. Schrijver: Combinatorial Optimization. Wiley 1997