
Dr Uwe Aickelin  
School of Computer Science  
University of Nottingham  
NG8 1BB UK  
uxa@cs.nott.ac.uk

Topic Item 1: Metaheuristics and Tabu search  
Topic Item 2: Inventory  
Topic Item 3: Scheduling and timetable

Abstract Title: A hybrid genetic algorithm to solve a lot-sizing and scheduling problem
Abstract: This paper reports a lot-sizing and scheduling problem, which minimizes inventory and backlog costs on m parallel machines with sequence-dependent set-up times over t periods. Problem solutions are represented as product subsets ordered and/or unordered for each machine m at each period t. The optimal lot sizes are determined applying a linear program. A genetic algorithm searches either over ordered or over unordered subsets (which are implicitly ordered using a fast ATSP-type heuristic) to identify an overall optimal solution. Initial computational results are presented, comparing the speed and solution quality of the ordered and unordered genetic algorithm approaches.