An overview of curriculum-based course timetabling

In 2007, the Second International Timetabling Competition (ITC-2007) has been organized and a formal definition of the Curriculum-Based Course Timetabling (CB-CTT) problem has been given, by taking into account several real-world constraints and objectives while keeping the problem general. CB-CTT consists of finding the best weekly assignment of university course lectures to rooms and time periods. A feasible schedule must satisfy a set of hard constraints and must also take into account a set of soft constraints, whose violation produces penalty terms to be minimized in the objective function. From ITC-2007, many researchers have developed advanced models and methods to solve CB-CTT. This survey is devoted to review the main works on the topic, with focus on mathematical models, lower bounds, and exact and heuristic algorithms. Besides giving an overview of these approaches, we highlight interesting extensions that could make the study of CB-CTT even more challenging and closer to reality.