**Meta-Heuristic Methods for a University Course Timetabling problem**

Assigning courses to timeslots and rooms in an academic environment is a challenging problem facing many university administrators all over the world. Due to the complexity of the problem, many institutions are continuously on the quest of acquiring good systems that are able to tackle the problem and come up with good solutions, and low penalty timetables.

Meta-heuristics have been widely used for university timetabling problems. They provide good quality solutions to problems of different sizes and under a variety of constraints like location of a course, the number of course sections and the course section size, etc.

The aim of this project is to design a Meta-heuristic-based system for academic institutions. The system should be able to provide school administrators with high quality timetables satisfying a variety of the constraints arising in real-world situations. The system should allow the university administrator to express his/her preferences. For example, he /she can be in particular interested in the location of the courses, while in some other scenario the utilisation of rooms is of higher interest.

The design of the Meta-heuristics, should start first by defining the heuristics for the search of the space of solutions. Secondly, the objective function for the evaluation of the quality of the solution has to be defined. A friendly windows-based graphical user interface to the system should be designed with a graphical presentation of the characteristics of the generated timetable, For example, a bar chart can be used to show the utilisation of all available rooms.