

Abstract

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Multi-objective Optimization for Exam Scheduling to Enhance the Educational Service Performance

Exam scheduling problem has been a complex problem. In this paper, we consider planning for the schedule of examinations of an Egyptian university. We provide and solve different formulations to the problem of scheduling examinations to minimize the total number of students who may have more than one exam at the same time taking into consideration capacity and other operational constraints. We further extend the problem and consider the case where we need also to minimize the number of students that have more than one exam per day, this results in a non-linear multi objective model where the school wants to minimize the number of conflicts (students with concurrent examination) and the number of students with more than one exam per day. We solve the problem using genetic algorithm and applied it to schedule the final examination in one of the largest universities in Egypt leading to a tremendous reduction of the required man power and a great reduction in the planning errors.