

A Genetic Algorithm for the Real-world University Course Timetabling Problem

ABSTRACT

In this work, we propose a Genetic Algorithm (GA) in addressing a post enrolment course timetabling (PECTT) problem for University Malaysia Sabah-Labuan International Campus (UMS-LIC). Tabu Search with Sampling and Perturbation (TSSP) is used to initiate a pool of feasible solutions in the GA. Experiments are conducted to set the best parameter values for the algorithm to operate optimally under a computation time limit. The proposed methodology is tested on a dataset based on semester 1, session 2018/2019 student registration. The automated timetables are compared with the one generated manually by the administrative staff of UMS-LIC. The former outperformed the latter in terms of hard and soft constraint violations (approximately 54% improvement). Experimental results are discussed.