

Sequential Constructive Algorithm incorporate with Fuzzy Logic for Solving Real World Course Timetabling Problem

ABSTRACT

Sequential constructive algorithm is one of the popular methods for solving timetabling problems. The concept of the algorithm is to assign event based on their difficulty value by using different sequential heuristic. The most common sequential heuristics are largest enrolment, largest degree and saturation degree. Each sequential heuristic has its own criteria to obtain events' difficulty value. Instead of single sequential heuristic, this paper presents to use fuzzy logic to consider multiple sequential heuristics in order to obtain the difficulty value of the events. The proposed method will be used to generate feasible solution as well as improve the quality of the solution. Another objective of this paper is to tackle a real world course timetabling problem from Universiti Malaysia Sabah Labuan International Campus (UMSLIC). Currently, UMSLIC generates course timetable manually which is very time consuming and ineffective. The experimental results show that the proposed method is able to produce better quality of solution less than one minute. In terms of quality of timetable and efficiency, the proposed method is outperforming UMSLIC's manual method.