

A Survey of University Course Timetabling Problem: Perspectives, Trends and Opportunities

ABSTRACT

The timetabling problem is common to academic institutions such as schools, colleges or universities. It is a very hard combinatorial optimisation problem which attracts the interest of many researchers. The university course timetabling problem (UCTTP) is difficult to address due to the size of the problem and several challenging hard and soft constraints. Over the years, various methodologies were proposed to solve UCTTP. The purpose of this survey paper is to provide the most recent scientific review of the methodologies applied to UCTTP. The paper unveils a classification of methodologies proposed in recent years based on chronology and datasets used. Perspectives, trends, challenges and opportunities in UCTTP are also presented. It is observed that meta-heuristic approaches are popular among researchers. This is followed closely by hybrid methodologies. Hyper-heuristic approaches are also able to produce effective results. Another observation is that the state-of-art methodologies in the scientific literature are not fully utilised in a real-world environment perhaps due to the limited flexibility of these methodologies.