University Timetabling via Graph Coloring: An Alternative Approach (∗)

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Abstract

The problem of timetabling courses at a university can be modeled and solved using graph coloring techniques. Traditional graph coloring models for timetabling involve graphs in which a vertex represents a course to be scheduled, an edge represents a pair of courses that conflict (i.e., cannot be scheduled for the same time period), and the color of a vertex represents the time period to which that course is to be scheduled. We present an alternative graph coloring method for university timetabling that incorporates room assignment during the coloring process. This method involves construction of an alternative type of course conflict graph. We discuss the construction of this alternative course conflict graph and methods for coloring it, along with the means by which one can use such a coloring to produce a satisfactory course timetable.

Key Words: university timetabling, graph coloring