UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

AN INTEGER LINEAR PROGRAMMING APPROACH TO A UNIVERSITY COURSE TIMETABLING PROBLEM

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

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ABSTRACT

In this study, the problem of university course timetabling in a Mathematics Department in Faculty of Computer and Mathematical Sciences of UiTM Seremban was addressed. Integer Linear Programming (ILP) was used to solve the problem of allocating lecturers, student groups, and class meetings to defined timeslots, typically a week, while satisfying a variety of problem-specific constraints. University Course Timetabling Problem (UCTP) is tough to address due to the scale of the challenges and various severe hard and soft constraints. The timetabling process must be done for each semester often, which is an exhausting and time-consuming task. The allocation of events in timeslots and class meetings is performed by the UCTP process using the list of hard and soft limitations supplied in one semester, so that no conflict is generated in such allocations. In the UCTP, the hard constraints should not be breached under any conditions; the soft constraints, likewise, should not be violated as much as possible. Over the years, numerous approaches have been offered to address UCTP. The purpose of the study is to model the UCTP as an ILP problem; likewise, the model will then be solved using the Excel Solver.