

**Universiti Teknologi MARA**

**Optimisation Lecturer's Teaching Load  
Using Integer Linear Programming: A  
Case Study in UiTM Perlis**

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## **STUDENT'S DECLARATION**

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.



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## ABSTRACT

Allocating teaching load for the lecturers must be completed before the semester starts for every university. The main objective behind this research is to find an easier and efficient way to allocate lecturer's teaching load with the subject of their preferences and teaching experiences on offered courses. Many universities still perform this process manually by trial and error method which is time-consuming, inefficient and prone to bias evaluation. It also may be unfavourable to the lecturer since the preference request course may differ from the subject assigned to them, which indirectly can affect the teaching and learning performance of the lecturers and students. This also can affect the university performance as well. Hence, this study aims to find the optimal teaching load allocation for teaching unit which is subjected to the preferences and previous experiences of the lecturer by using formulated integer linear programming model with 0 – 1 integer (binary) variables. An online survey was distributed to seven Statistics lecturers teaching undergraduate students to collect information on lecturers' preferences. There is also information collected from academic affairs to develop an integer linear programming model. The model is then solved using software called Lingo version 18. The result of this research has found optimal teaching load allocation. By maximising the objective function, every lecturer gets to teach their preferred courses with all constraints satisfied. No bias is given and the task is done in a short time. Future improvement in the mathematical model is suggested to take all total teaching hour by including all courses. Future researchers also should test using another integer linear programming method such as pure integer programming method.

**Keywords:** integer linear programming, teaching load allocation, timetabling.

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