

Universiti Teknologi MARA

**A Linear Programming Model for
Teaching Load Allocation of Academic
Staff at University**

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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

This study that is about teaching loads refers to the allocation of teaching hours among academic staff. It will be the ideal way to assign the right courses to the right staff based on their expertise, preference, and experience. In many teaching units, the task is done manually through trial-and-error which is rather time-consuming, inefficient, and subject to bias judgment. The purpose of this study is to use linear programming to optimize the model and to appoint the right lecturer to teach the courses on the basis of their chosen weight. Therefore, a linear programming model was developed to achieve an optimum allocation of teaching loads subject to considered constraints. The importance of the research is that it is possible to assign a suitable lecturer to the right position, and does not need to be assigned manually. A survey was conducted to determine the preferences of academic staff to teach the courses offered where primary data was collected using Google Forms among 20 lecturers from the Department of Mathematics, UiTM Arau, Perlis with 26 courses considered, and secondary data from academic affairs was collected. A feasible solution was found with the use of optimization software LINGO version 18 optimization software and Excel 2020, where the objectives were achieved since the lecturers get to teach the courses based on their preference weights and the model is optimized by using the LP method. Therefore, the model serves as a good tool to assist the head of teaching units in allocating teaching loads and this will improve the quality of teaching as well as will provide a great impact on the students' results.

Keywords: teaching load; time-consuming; allocation problem; optimization; linear programming

TABLE OF CONTENTS

CONTENTS	PAGE
SUPERVISOR'S APPROVAL	ii
DECLARATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
TABLE OF CONTENTS	vi
LIST OF FIGURES	ix
LIST OF TABLES	x
LIST OF ABBREVIATIONS	xi
CHAPTER ONE: INTRODUCTION	
1.1 Background of the Study	1
1.2 Problem Statement	3
1.3 Objective of the Study	4
1.4 Scope of the Study	4
1.5 Significance of the Study	5
1.6 Summary	5
CHAPTER TWO: LITERATURE REVIEW	
2.1 Teaching Load	6
2.2 Teaching Hours	7
2.3 University Time Tabling Using Linear Programming	8
2.4 University Time Tabling Using Integer Linear Programming	11

2.5	University Time Tabling Using Integer Mixed Linear Programming	14
2.6	Summary	15

CHAPTER THREE: RESEARCH METHODOLOGY

3.1	Research Methodology Process	16
3.2	Steps in Methodology	17
3.3	Methodological Approach	18
3.4	Method of Data Collection	18
3.5	Data Collected from Academic Affairs	19
3.6	Questionnaire Development	23
3.7	Method of Analysis	26
3.8	Linear Programming Model Development	26
3.9	Summary of Analysis Technique	80

CHAPTER FOUR: RESULTS AND DISCUSSIONS

4.1	Data Sources	81
4.2	Results	87
4.2.1	Solution of Model Using LINGO Software	88
4.2.2	Solver Status	92
4.2.3	Solution Report	93
4.2.4	Result of Allocation Based on LINGO	94
4.3	Discussions	95