

UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

**A STUDY OF HEAT EQUATION USING SEPARABLE
VARIABLE METHOD.**

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS	ii
TABLE OF CONTENTS	iii
LIST OF FIGURES	iv
ABSTRACT	v
CHAPTER 1: INTRODUCTION.....	1
1.1 Motivation.....	1
1.2 Problem Statement	2
1.3 Objectives	2
1.4 Significant and Benefit of Study.....	3
1.5 Scope and Limitation of Study.....	3
CHAPTER 2: BACKGROUND THEORY AND LITERATURE REVIEW	4
2.1 Introduction.....	4
2.2 Background Theory	4
2.3 Related Research on Heat Transfer.....	4
2.4 Conclusion	12
CHAPTER 3: METHODOLOGY AND IMPLEMENTATION.....	13
3.1 Research methodology	13
3.2 Formulation in solving the heat equation.....	14
3.3 Conclusion	18
CHAPTER 4: RESULTS AND DISCUSSION	19
4.1 Introduction.....	19
4.2 Analytical Solution	19
4.3 Maple Coding.....	29
4.4 The physical phenomenon of heat generation by using partial differential equation.....	32
4.5 Conclusion	33
CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS.....	34
5.1 Conclusion	34
5.2 Future Recommendation.....	34
REFERENCES.....	35
APPENDIX A	38

LIST OF FIGURES

Figure 1. Phase of Methodology	13
Figure 2. Graph of temperature for problem 1	31
Figure 3. Graph of temperature for problem 2	32
Figure 4. Graph of temperature in previous study	33
Figure 5. MAPLE coding of previous study	38

ABSTRACT

During the last few decades, several interesting studies have been performed to investigate the applications of the partial differential equations (PDEs). Heat equation is one of the most famous partial differential equations. It has great importance not only in physics but also in many other fields. To introduce PDEs, specifically to study on the heat equation, this study is going to solve a simple problem which a function of space and time with different initial and boundary conditions. In this study, the objectives are to solve the heat equation using separable variable method with different boundary condition, to verify the solution of heat equation model with respect to time, and to compare the results based on previous study (Morales et al., 2021). To solve the heat equation, partial differential equation which is non-homogeneous model was used. The method of solving is using separable variable method. All the data will be substitute in the partial differential equation to get the temperature equation. Moreover, to verify the solution of the heat equation model with respect to time, Maple Software was used as aid. The result and discussion of current study and previous study has been compared. As the result of the comparison, both study shows the decreasing and increasing graph for both problem due to inconsistent temperature. This study provides useful information for future research studies into diverse heat transmission.