REDUCTION METHOD IN STRUCTURAL ANALYSIS USING MATHCAD AS A SOLUTION FOR STRUCTURAL ENGINEER

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B.Eng (Hons) (Civil)

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Declaration By The Candidate

I am Muhamad Nassirudin Bin Ma'amin, UiTM ID 200359791 declared that this project is my own work, except the ideas and summaries which I have clarified their sources. The appropriate credit has been given where reference has been made to the work of others.

Signature :_____

Date:_____

ACKNOWLEDGEMENT

In the name of Allah, most gracious and most merciful, with His permission, the project has been successfully completed. Praised to Prophet Muhammad, his companions and to those who are on the path as what he preached upon, may Allah almighty keep us blessing and tenders.

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ABSTRACT

This project is about structural analysis that applied on a program called Mathcad. The analysis of the structure is using a method called reduction method. This study is concentrate on one beam element that is beam and two types of loading that is uniform distribution load and point load. The main objective is to produce bending moment and shear force diagram. This project also to promote structural analysis in form of program and to introduce reduction method to civil engineering student. There are 3 sample of model that were created that are two span beam, three span beam and limit of 10 span beam. The three sample were analyzed by reduction method that were applied on Mathcad will produce bending moment and shear force diagram. It also produces the value of reaction at support, vertical displacement at support and rotation at support. The effectiveness of this program were compared with Stab2D. At the end of this study the advantages and the disadvantages of Mathcad and manual calculation were been compared.