# SIMULATION STUDIES OF A BRIDGE STRUCTURE USING FINITE ELEMENT METHOD AND VALIDATION


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**DECLARATION OF ORIGINAL WORK**

**DIPLOMA OF MECHANICAL ENGINEERING (EM110)**
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**"DECLARATION OF ORIGINAL WORK"**

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Hereby, declare that:

- This work has not previously been accepted in substance for any diploma or degree, locally or overseas, and is not being concurrently submitted for this diploma or any other diplomas.
- This project – paper is the result of our independent work and investigation, except where otherwise stated.

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**ABSTRACT**

In this project, the simulation study of a bridge structure is done. The objective of this project is to analyse the nodal displacement, stresses in elements and reaction at supports when load is applied to the bridge. Mathematical calculation and modelling based on trusses is explained in detail before any analysis being done. TRUSS2.BAS program in Q-BASIC programming language is used to solve the problem. The result is also validated using calculation analysis. The result of this analysis is shown in the output data that consists have -x and -y axis nodal displacement after load is applied, stress of each element and reaction at supports. The model that we proposed and the results of the deflection can be visualized in PLOT 2D2.BAS and AUTO CAD R14 programme using the input and output data.

## TABLE OF CONTENTS