

**DESIGN OF VERNIER TOOL FOR INSPECTION  
OF WELDMENT**

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“I declared that this thesis is the result of my own work except the idea and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree.”

Signed :  .....

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## ABSTRACT

The inspection of welding is mandatory for all welding. In aesthetic welding, the inspector checks the beauty of the joint. In structural welding, the inspector check the quality of joint based on code requirement. Welding gauges is the essential that for inspection. Most of the weld gauges sold in the market can read dimension of a weld to the accuracy of 0.5mm. The user more often has to estimate or guess the accuracy rather than rely on the actual reading shown on the gauge. Based on welding standard or code of practice, the border of acceptance and rejection of the weld requires the accuracy of 0.1mm. For example weld reinforcement  $> 2.4\text{mm}$  rejected, if  $< 2.4\text{mm}$  passed.

It is a necessity to develop a better measuring tool with better accuracy, for the welding inspection. Presently, the reading on the weld size, weld joint preparation, angular measurement, size of imperfection or defects could not be recorded in higher precision because the absence of such instrument. The measurement tool has to be equipped with a suitable vernier system beside the basic dimension recorded in unit millimeter or degree. On the other hand, the application of vernier system can give better readings up to 0.05mm.

In this project, design of weld gauge with vernier will produce to fulfill the requirement of welding inspection. Modification is made to the vernier caliper and the new vernier tool is developed. The new weld gauge can demonstrate the accurate and convenient measurement of all physical dimension of a weld joint and weld imperfection. It is accurate and cheap in cost.

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