

## **ABSTRACT**

*Additive manufacturing or 3d printing is one of technology that is currently the development of rapidly and many applied as a technology rapid prototyping .How to work the technology is by heating material in the form of filament in a nozzle was then printed with the methods in layer after layer of emphasis .Filaments polyvinylalcohol ( pva ) is one of the kinds of polymer which when is frequently used in 3d technology printing .The purpose of this research is to find the influence of the process of optimal parameter and a combination of the level of optimal parameter process on 3d products printing on the material pva using taguchi method.*

*The experimental design being used in this research was the orthogonal arrays of L4 (2<sup>2</sup>) that has four experiments with two process parameters used is feed rate and layer heigh three level variations on each parameter (80 %, 100 %, 0,2 mm, 0.4 mm). The responses in this research were dimension accuracy (w, T and l) and tensile strength of 3D printing PVA product, then data response result was analyzed using SNR and ANOVA.*

*Based on the results of SNR and ANOVA analysis shows the most influencing of process parameters on the dimensional accuracy response and tensile strength was dominated by layer heigh, and than feed rate. The result of this research suggests combination parameters optimal level process resulting from taguchi method that feeds rate 80 %, and layer heigh 0.2 mm show results tensile strength pva products with the tensile strength of 6.636 MPa at a 95% confidence interval (CI).*

**Keywords: 3D Printing, FDM, PVA, feed Rate, Layer High, Taguchi, Tensile strength, Dimension Accuracy.**