

# INFLUENCE OF MECHANICAL MACHINERY SEWING MACHINE ON PRODUCTION SPEED

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## ABSTRACT

*A good of the Work Designing System that can provide a comfortable working system, safe, efficient, and effective so as to maximize the achievement of the results of a production process. One of the factors that must be considered in the design of work system is the physical work environment factors. Physical work environment consists of lighting factor, noise factor, temperature factor, humidity factor, and mechanical vibration factor. The observed factor is mechanical vibration factor, other factor is not done research because the factor has been done research and tested its influence by previous researcher, therefore mechanical vibration factor will be examined to test its influence.*

*The research was done by using latin square experiment. The main factor in this research is mechanical vibration factor with 2 factors of nuisance that is humidity factor and operator factor, with number of factor level each three factor levels. The mechanical vibration factor level consists of mechanical vibrations of 7.1 mm / s, 4.5 mm / s, 1.8 mm / s, then humidity factor levels are 75%, 60%, 40% moisture, and factor level operator consists of operators with experience working 13 years, 8 years, 1 year.*

*The result obtained is mechanical vibration has significant effect on production speed at  $\alpha = 5\%$ . Once it is proved that mechanical vibrations have an effect, the next issue is the level of which factor is the most influential. The test was done by Student Newman Keuls (SN-K) method. The test results show that the most influential factor level is mechanical vibration of 1.8 mm / s, the vibration is capable of producing better production speeds compared to mechanical vibrations of 1.7 mm / s and mechanical vibrations of 4.5 mm / s produce a better production speed compared to mechanical vibrations of 7.1 mm / s.*

*The conclusion of the research result is to design a comfortable working system and can produce the best production speed then company must pay attention to mechanical vibration on machine used for production, because mechanical vibration have significant effect to production speed. Mechanical vibrations that can be used for increased production speed at the firms studied by mechanical vibrations of 4.5 mm / s or using mechanical vibrations of 1.8 mm / s.*

*Keywords: Work System, Design Experiment, Mechanical Vibration, Latin Square.*