

## **ABSTRACT**

*Musculoskeletal Disorders (MSDS) is a disease that attacks the Musculoskeletal system that will causes fatigue and pain in ligaments, muscles, nerves, joints, tendons, and spine. MSDS will cause injuries for the operator. The workplace and ergonomic approach consider two factors that will cause MSDS, that are internal and external factor. Internal factors focused on the human factor and it can be directly felt. Meanwhile, the external factors focused on the non-human factor and the effect is indirect which is the environment of the operator. The objectives of this research are formulating the workplace design and ergonomic measurement with the main object is the operator and the environment. There are 3 methods in this research, that are: fatigue study, anthropometric measurement, and environmental design. This research has obtained samples of 56 operators from the Nordic Questionnaire and Anthropometric Measurement. The criteria of the samples are those operators in the production division at PT. XYZ. The results from the Nordic Questionnaire and Anthropometric measurement is a design of a worktable that has been evaluated by RULA and OWAS. The recommendation results can utilize the findings of this research as the basis of alternatives solutions for the company. The implication of this research is to decrease Musculoskeletal Disorder using fatigue study, anthropometric measurement, and environmental ergonomic.*

*Keywords: Musculoskeletal Disorder, Environmental Ergonomic, Workplace Design, Physical Workload, Nordic Questionnaire, Anthropometric.*