

ABSTRACT

Industrial Engineering Laboratory Institute of Technology Telkom (IT Telkom) is one of an instrument in supporting students studying industrial engineering science. Lab work is one of the activities which are done by students in the laboratory. Lab work in the industrial engineering laboratory are a processing statistics, drawing and analysis digital map, product design, graphic design and presentation of scientific reports that require students to use computers. From the observation in existing infrastructure conditions, student using a computer-based work station or Visual Display Terminal (VDT) which is less in ergonomic. To support this statement, ergonomic evaluation is done with VDT evaluation checklist method. Result of processing VDT evaluation checklist states that a total of answer "no" is 53.59%, more than a total of answer "yes" which is only 46.41% for all the questions in the VDT evaluation checklist. The differences total answers "no" with a total answer "yes" are significant enough to conclude that VDT is not ergonomic enough in terms of operator posture and work habits. To avoid this problem, it is necessary to design a VDT ergonomic design that can improve student learning productivity

The stage of this research begins from collecting the population anthropometry data (industrial engineering student 2007's grade), the existing VDT-dimensional data and user activity data. From the population anthropometry data, then it is necessary to calculate the mean, deviation standard and determining VDT design anthropometry data. VDT design anthropometry data will be tested with some testing for feasibility to adjust dimension or measurement in design. Human modeling is obtained by calculating some anthropometry into Mannequin Pro software. The human model is simulated with the existing VDT-dimensional data as a representation of existing VDT conditions. The result of the model simulation is evaluated using an ErgoEASER software and in an accordance with the ergonomic criteria for VDT. The result is that the existing VDT is not optimal enough in terms of ergonomic.

In its process of design, this research is using rational design method. Instead of based on the creative ideas from scientists, this method is also includes the voice of customers obtained from a brainstorming process with laboratories assistants. Design steps of the rational method are Clarifying Objectives, Establishing Function, Setting Requirements, Determining Characteristics, Generating Alternatives, Evaluating Alternatives, and Improving Details.

VDT specification as a result from this research is a VDT frame from steel, chair and table form which is designed with portable concept, medium cushions, chair blanket from rubber, and table board from teak wood. Size used for table height is 75 cm, 81,5 cm for table width, 32 cm for armrest length, 50 cm for armrest width, 18 cm armrest for height from seat, 45 cm for seat length, 43 cm for seat height from the floor, 42 cm for seat width, 35 cm for back support width and 52 cm for back support height

Keyword : Visual Display Terminal (VDT), Ergonomic, Mannequin Pro, ErgoEASER