

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

For this chapter, it is about explanation of flow chart, sketching of design product, concept screening to select the best design and performance. This chapter also show the finalized design and the specification of the final design that have been selected. Fabrication process of the project is shown in this chapter.

3.2 FLOW CHART

The flow chart starts with the introduction. This is where the first plan work is constructed. The supervisor explains the scope of the project and requested for understanding of the project and makes some finding about the project. Student makes project synopsis, objective, scopes, problem statement and work planning. Then the problem statement is following down the steps. Here problem are generated by the observing and research on the project.

Next the literature review of the project is done thoroughly to get the better understanding of this project. The literature review covered all the aspects regarding the build of magnetic clamp. Student gets the information via internet and books. Additional information comes from lecturer and other student.

After the literature review was done, conceptual design like a few raw sketching were done to fulfil the objective and the problem statement of the project. Four sketches were made with 3-dimensional and clear understanding. Sketching is done to make a clear view for designing process after this.

After all the sketches are prepared, a comparison among the sketches is made to give the advantage and this advantage for the sketches. This is to make sure the best sketches will be produced. All the sketch must be scoring depend on the characteristics and the higher score can be the finalized design. The best sketch will draw using Solidwork software to get the full feature of the product.

After the drawing is done, the material can be selected. The material that have been selected must base on the objective of this project which is must not give damage to the workpiece while welding, heat resistant and low in cost. The first step is getting material from the Faculty of Mechanical Engineering store. Cylindrical aluminium is used to make a casing for the magnet. The sheet metal is used to make a head of the casing. The magnet has been order at Load Technology Engineering (M) SDN BHD company at Shah Alam, Selangor. The aluminium is cut into various lengths according to the drawing. After that drilling process is needed to make a hole to put the magnet inside the cylindrical aluminium. After that, shape the sheet metal in round shape with diameter according to the drawing the combine it with a bolt using welding process. Shape another sheet metal as a holder and joint the holder to the aluminium cylinder using a screw.

As all the parts had been joined together, it comes to the result and discussion section. In this section, the report and the product are shown and tested. The draft report and the entire related article are handed over to the supervisor for checking. If the project doesn't work, the project must return to the fabrication process to make some modification.

For the conclusion, all the recommendations are stated to get the best quality product. The project and the report are also checked to make sure no mistake and flaw in the end report.

Lastly, when the report and the project are approved by the supervisor, the project will be finally published and handed over to the supervisor, the coordinator and the Faculty of Mechanical Engineering. All presentation slides were also made and ready to be presented. Figure 3.1 shows the figure of the flow chart.