CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

Research methodology was defined as a systematic way that used to collect relevant information and data for research projects. It also can be defined as a process that how the researcher to solve certain unanswered problems and also study how the research can be conducted. In the research, the collection of relevant data and information can be done in theoretical procedures, through the study of others related experimental or research, interviews, surveys and so on. After gathering the collection of data and information, the analysis and interpretation will be involved. Therefore, in order to ensure the objectives of this research can be achieved and the research methodology in the right path, there were a few guidelines needed to be followed. The respective phases were stated as the following:

I. Collection of relevant information and data about this research.
II. Preparation of all relevant materials that required in this research.
III. Carried out the testing and obtained the result.
IV. Gathered the graph and data from the respective experiment and analyzed the result.
In this chapter, the method and the detailed procedures to carry out the testing was documented. Basically this study was divided into several parts to make sure the testing was done according to the standard specification and requirement. The main part for this study was the preparation of sample, internal curing or self-curing process, sample testing and analysis of result collected. For this research, preparation of sample including checked the particle size distribution of each material to be used and also the prepared the proportion of steel dust that calculated before the mixing of geopolymer mortar was conducting. Then, concrete casting was started right after the preparation of all the materials that needed in this research. After waiting for 1 hour after the concrete casting, the geopolymer mortar that produced was undergone oven curing for 24 hours or 1 day at respectively controlled temperature. After 24 hours of oven curing, the geopolymer mortar was taken out from oven and left it in laboratory for self-curing or internal curing in room temperature for 1, 7 and 28 days respectively. Sample testing was started after the curing age or period reached which was in 1, 7 and 28 days respectively. All the results and data collected from sample testing was then being analyzed and evaluated.

3.2 FLOW CHART OF RESEARCH METHODOLOGY

Figure 3.1 shows the overall flow chart for the research methodology for all the testing involved in this research which including the sieve analysis, compressive strength test and also the water porosity test. This was important to determine the effect of steel dust in the distribution of heat during internal curing process on geopolymer mortar cubes. The flowchart for this research was shown as Figure 3.1 below:
Figure 3.1: Flow Chart of Research Methodology