

# CHAPTER I

## INTRODUCTION

### 1.1 Background

Technology material is now developing very rapidly. It is propelled by the needs of a material that can meet characteristic of certain desired. One of them is a composite. The ability to easily molded in accordance with their needs, in terms of power, in perspective, and its excellence in the ratio of strength to weight, encourage the use of composite as an ingredient of a substitute for material metal commonly used in a variety of products.

In manufacturing industries needed a material having features of the difficult to obtain from a metal. The alternative is a composite material that can be used to fulfill the need. It is a composite of reinforcing (reinforcement) the matrix. More than its composite compared with comparisons of heavy metals is today, resistance to corrosion and others. For example, in its machine design requires a very mild but having high tensile strength and has the efficiency and economical in the use of material the metals had to choose. Therefore chosen composite materials, polymer as substitute metals. But it also should composite polymer pursuing deeper because it will be used for material that is replacing component machines made of metal.

Composite materials made from two or more different materials. First is the matrix, which serves as a glue to keep the fibers together. Both are fiber, which serves as a composite reinforcement of unification. One type of composites that can be easily formed is a hybrid composite. Hybrid composites formed by two or more reinforcements, so the modification that the arrangement and composition, it will be easy to achieve mechanical properties.

Based on the properties of catalysts that can speed up the reaction, sometimes in the manufacture of body motorcycle using the number or composition of the catalyst makers, without considering other factors that can affect the body or out of the function itself. With the ideal mix is expected to produce optimal results and maximum strength to get effective results.

Based on the description above, in this study the authors will conduct a research differences fiber, random fibers, woven fibers, the composition of the mixture catalyst and similar resin. Then the next is analyze the result after test and will be compared between each fiber glass.

## **1.2 Objectives**

1. Knowing the fiber quality differences are used to make motorcycle body.
2. Knowing the good quality of composite is used in modification motorcycle.

## **1.3 Problem limitation**

1. The main material used is in the form of resin 157 BTQN, catalyst and fiberglass.
2. The catalyst used is 4.76% of resin in the composite manufacturing.
3. The specimens are tested in the impact test, bending test, and tensile test.

## **1.4 Methodology**

In this research, the writer is hoped that it can give many contributions. There are a lot of benefits using fiber composite.

The methodology that used is an observation. Observation that will be conducted by making specimen then do the test and get the data of research which is used as the main point of analysis.

Observation at some places making body fiber modification at Surakarta is the first step in this study. Ensuring by asking and studying literature is required to prevent mistakes that may occur in

this study. Secondly is making the specimen in 3 variations fiber then test it at Mechanical Properties Lab in Gajah Mada University.

### **1.5 Writing systematic**

The writing systematic in this final project is:

#### **CHAPTER I INTRODUCTION**

It composes background, purpose, problem limitation, methodology, and writing systematic.

#### **CHAPTER II THEORYTICAL BASE**

In this chapter will explain about the theoretical bas and the basic which must be known from the composite, resin 157 BTQN, catalyst, fiberglass and about test equipment.

#### **CHAPTER III RESEARCH METHODOLOGY**

For getting good result. So, describes the experimental methodology, measures used and description of test equipment used in general. And this chapter will show the process and procedure for completing this final project.

#### **CHAPTER IV RESULT AND EXPLAINATION**

To get good results, in this study using the standard in the manufacturing process of composite testing. Therefore, this chapter will show the process and procedure to conduct this final project.

## CHAPTER V CONCLUSSION AND ADVICE

The conclusion of research is about how to determine the better fiber that can be used for motorcycle body.