CHAPTER 1

INTRODUCTION

1.1. Background

Bridges are part of the land transportation infrastructure that is vital in traffic flows. It starts with a very simple construction, the bridge was built concept consists of horizontal beams supported by each by piers, as shown in Figure 1.1. Use wood as a construction material, bridges can only be used for short spans and for shallow depths.

Figure 1.1. Basic concept of simple bridge

Steel used for civil construction, including construction of the bridge, the bridge can be built to span the length and constructed in the deepest valey. The shape of the bridge also varies from simple I-beam bridges, steel frame bridges to modern steel arch bridges as shown in Figure 1.2, 1.3, and Figure 1.4. each.

Figure 1.2. Simple Beam Bridge

Figure 1.3. Steel-Truss bridge

Figure 1.4. Modern Steel-Truss Arch Bridge

Revolution of bridge design is getting proceed, and the last development in bridge construction is using cable to hang the beam and deck or super-structure of the bridge. The famous type of bridge using cable are Suspension Bridge and Cable-Stayed Bridge. This two cable bridge are constructed to answer the need bridge construction which can be used to a cross a wide river or strait as well as to across the deep valey as shown in Figure 1.5. and 1.6.

Figure 1.5. Suspension Bridge

Figure 1.6. Cable-Stayed Bridge

1.2. Pedestrian Suspension Bridge

This final assignmnet will specially make design and calculation of suspension bridge. As shown in Figure 1.5. above, a suspension bridge is a type of bridge in which the deck (the load-bearing portion) is hung below suspension cables on vertical suspenders. This type of bridge has cables suspended between towers, plus vertical *suspender cables* that carry the weight of the deck below, upon which traffic crosses. This arrangement allows the deck to be level or to arc upward for additional clearance.

1.3. Objectives of the study

Based on background above, the objectives of this study are :

1. Design and calculation of pedestrian suspension bridge located at Ringinarum, Kendal – Central Java.
2. To get knowledge of designing of pedestrian suspension bridge.

1.4. Scope of the study

This study begins with a literature review of information relating to the analysis of entire parts of the suspension bridge. Several books, journals, and papers related to suspension bridges will be reviewed. The literature review will be followed by the methodology, in the above methodology chapter, the top of the suspension bridge foundation will be the focus of the study.

In the next discussion will be explained about literatur review in chapter 2, followes by discussion of planning design and methodology in chapter 3, then will be calculated about design calculation and analysis in chapter 4, and the last conclusions and recommendation in chapter 5.