

# CHAPTER I

## INTRODUCTION

### 1.1 Background

Since the beginning of the early twentieth century, civil aviation has become one of the most fascinating, important, and complex industries in the world. The civil aviation system, particularly airports, has come to be the backbone of world transport and a necessity to twenty-first-century trade and commerce [1].

Airport is the place for aircraft to take and drop passengers and goods, and are completed with Runway, Taxiway, Building for office and serving passengers, Air Traffic Control, Hangar, Apron, and Lighting. The length of runway is depending on type of which aircraft use runway. Almost all cities in Indonesia have airports, ranging from large medium until small airport. Some airports serve international flight such as Airport Soekarno-Hatta in Cengkareng Jakarta, Airport Juanda-Surabaya, Airport Kuala Namu-Medan, and many more

In this final assignment will be studied the improvement of Notohadinegoro Airport the small domestic airport of Jember located at East Java Province. The study include extension of runway length, change with of taxiway and extending apron. At the moment the length of runway of Notohadinegoro Airport is 1.650 meters and width 30 meters (see Figure 1.1), and to be used for aircraft type ATR72-600 (Figure 1.2). Angkasa Pura II Company Limited (P.T Angkasa Pura II), the Own State Company who handle the airport management in Indonesia have competent to improve the Notohadinegoro Airport of Jember from use for ATR727-600 to be able to use for aircraft type Boeing 737-800 and Airbus 320 (Figure 1.3). For that purpose



Figure 1.1. Runway of Notohadinegoro Airport (Source: [2])



Figure 1.2. Aircraft type ATR72-600 (Source: [3])



Figure 1.3. Aircraft type Airbus A320 (Source: [4])

the length of runway must be extended from 1.650 meters to 2.250 meters and the width from 30 meters to 45 meters. The reason of the improvement of Notohadinegoro Domestic Airport are because increasing the quantity of passengers due to the profit of economic growth rate, in addition the Notohadinegoro airport will also planned to be used as an airport for Hajj embarkation.

## **1.2 Objective of The Study**

Based On the description in the background above, the objectives of this study are:

- 1) Design of new Runway (extended runway), Taxiway, and Apron
- 2) Calculation of pavement thickness of runway, taxiway and apron

## **1.3 Problem Limitation**

Since there are no data available on designing airport improvement (runway, taxiway, and apron) in this study some limitations are taken. Those are:

- CBR subgrade value take 3%.
- Drainage to be assumed as good drainage.

## **1.4 Scope of The Study**

To achieve the objectives this study begins with a literatures review of various information included of runway, taxiway, and apron pavement, technical proposals for DED construction of Notohadinegoro airport in Jember, journals, books, papers, which related to the objectives of the study. The literature review will then be followed by a Methodology, design and planning will be explained in chapter 4, and the results of designs and calculation will be described in chapter 5.