

## **ABSTRACT**

### **OPTIMIZING THE UTILIZATION OF THIRD RUNWAY IN SOEKARNO HATTA INTERNATIONAL AIRPORT TO INCREASE RUNWAY CAPACITY**

By

Hans Valiancius Ongkowijoyo

The aim of this thesis is to optimizing the utilization of third runway in Soekarno Hatta International Airport by giving recommendation using visualization and calculation regarding runway capacity. The data of schedule in Soekarno-Hatta International Airport was taken on flightradar24.com during 1 January 2020 until 6 January 2020. The calculation of the runway capacity using time space analysis method and visualization using BlueSky ATM Simulator. The highest runway capacity is when the runway operates as take-off only or landing-only configuration by 44 flight per hour. There are 3 scenarios of Soekarno-Hatta International operation. All of the scenarios will be simulated and analysed. The log data of simulation is analysed using phyton programming to know the separation for every aircraft and ensured that the minima distance because of wake turbulence is fulfilled.

The recommendations are runway 07L/25R and 06/24 operates as segregated parallel operation by installing ILS on runway 06/24, extending NP2 and NP3 taxiway for increasing the capacity and reducing the runway incident probability. The result shows by extending the taxiway, the operation of runway 06/24 will not disturb runway 07L/25R operation, the runway capacity will increase 60%, and the utilization of third runway increases 55%.

*Keyword: Runway Capacity, Time Space Analysis, Runway Utilization, BlueSky ATM Simulator, Soekarno-Hatta International Airport*