

## Optimizing the utilization of third runway in soekarno hatta international airport using time space analysis

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20513047&lokasi=lokal>

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### Abstrak

The aim of this research is to optimise the utilization of third runway in Soekarno Hatta International Airport by giving recommendation based on calculation and simulation of runway capacity. The flight schedule data in Soekarno-Hatta International Airport was taken from flightradar24.com for duration of 1- 6 January 2020. The calculation of the runway capacity uses time space analysis method and simulation in BlueSky ATM Simulator. The highest runway capacity of 44 flights per hour is reached when the runway operates as take-off only or landing-only configuration. The simulation is conducted for 3 scenarios: 2 runways configuration, 3 runways configuration and 3 runways configuration with modification. The log data of simulation is analysed using Python programming to know the separation for every pair of flights and ensured that the minima distance due to 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 results from extending the taxiway are the operation of runway 06/24 will not disturb runway 07L/25R operation, the runway capacity will increase by 60%, and the utilization of third runway will increase by 55%.