

ABSTRACT

ANALYSIS OF AIRCRAFT CONTROL INPUT TO PRODUCE 3D CONTINUOUS DESCENT APPROACH (CDA) TRAJECTORY WITH PY-FME

By Ronald Andryando

One of proposed solutions to decrease the fuel of flight is by optimizing descent trajectory. This research is about make a 3D Continuous Descent Approach (CDA) trajectory. The main focus of this research is how to control the aircraft to be able descent with CDA with some types of trajectory. The CDA is based on Time and Energy Managed Operation concept where the use of idle thrust is the key of this research. The research will also analyze the fuel consumption of aircraft with descending in CDA trajectory. The methodology on this research is by using a Python programming module called Py-FME with Cessna-172 aircraft data to create a simulation of aircraft descending. After data collection, the result concluded that thrust and elevator input is the better control to achieved CDA. The conclusion of this research is CDA reduce the fuel consumption by 21.96%.

Keyword: 3D Trajectory, Continuous Descent Approach, Landing Trajectory, PY-FME, Cessna 172