



DEPARTMENT FAHRZEUGTECHNIK UND FLUGZEUGBAU

Preliminary Sizing of Propeller and Jet Aircraft – Extension of PreSTo and Combination with CEASIOM

Task for a *Master Thesis* at Warsaw University of Technology, WUT

Background

This master thesis is part of the aircraft design research project “Green Freighter” (<http://GF.ProfScholz.de>). Within the scope of this project the HAW Hamburg’s MS Excel-based Aircraft Preliminary Sizing Tool PreSTo is being extended and applied to the initial sizing of different aircraft designs. CEASIOM (Computerised Environment for Aircraft Synthesis and Integrated Optimisation Methods) is a Matlab-based design environment for the analyses of aerodynamics, structures and flight dynamics at a very early stage during the aircraft design process.

Task

The student shall

- integrate the two existing PreSTo-modules “Preliminary sizing of large propeller driven aircraft” and “Preliminary sizing of jet aircraft” into one application and
- setup an interface to CEASIOM to, first, produce a graphical output of the new aircraft design and, second, estimate the resulting flight mechanical derivatives.

The described tasks shall be performed on the basis of a re-design and investigation of a jet and a propeller variant of the regional aircraft ATR 72.

The report has to be written according to German or international standards on report writing!