Hochschule für Angewandte Wissenschaften Hamburg
Hamburg University of Applied Sciences

DEPARTMENT FAHRZEUGTECHNIK UND FLUGZEUGBAU

Conceptual Design of Wings and Tailplanes – Methods, Statistics, Tool Setup

Task for a *Master Thesis* at KHBO

Background

This master thesis is part of the aircraft design research project "Green Freighter" (http://GF.ProfScholz.de). In this project the tool PrADO "Preliminary Aircraft Design and Optimization program" is used to investigate and optimize different aircraft configurations which requires an extensive input file.

Task

The student shall create a tool to support the conceptual design of aircraft wings and tailplanes. Based on a minimum of input data, wings and tailplanes shall be defined in as much detail as required in conceptual design. In addition, the generated data shall be available in a format that facilitates the generation of a PrADO input file. The thesis shall include

- the research of elements towards a conceptual design of aircraft wings and tailplanes,
- the combination of the conceptual design elements with own statistics towards a comprehensive conceptual layout process for wings and tailplanes,
- the programming of an easy-to-use tool for conceptual wing and tailplane design based on MS Excel,
- the programming of an interface to generate sections of the PrADO input file required for the definition of wings and tailplanes.

This Master Thesis is related to a second Master Thesis "Conceptual Design of Fuselages, Cabins and Landing Gears – Methods, Statistics, Tool Setup". Both theses shall apply the same layout principles, programming styles and styles defined for the user interface.

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