



DEPARTMENT FAHRZEUGTECHNIK UND FLUGZEUGBAU

Assessment of Alternative Configurations of Box Wing Aircraft

Task for a *project*

Background

A short to medium range box wing aircraft based on the Airbus A320 is examined within the framework of the research project Airport 2030 (**Airport 2030**), focusing on improved performance and a more efficient ground handling. In **Schiktanz 2011** a first configuration was designed, making use of common methods in aircraft design presented in **Scholz 1999** and taking account of the special characteristics of box wing aircraft. This configuration fulfils all requirements, but it cannot be guaranteed that it is the best out of all possible versions. Therefore it is necessary to identify alternative versions and to assess their potential.

Task

Alternative versions to the current box wing design are to be found and assessed. This task requires a systematic approach. In detail the following subtasks are proposed to be treated:

- Short description of the current box wing configuration including the design requirements
- Definition of requirements on aircraft component level and the main functions of these components
- Identification of different component designs which fulfil the main functions and meet the component requirements
- Examination of possibilities of combining the component designs to form a consistent aircraft layout while considering the aircraft requirements
- Comparison of the current configuration with the found alternative configurations

The report has to be written in English based on German or international standards on report writing.

References

Airport 2030

URL: <http://Airport2030.ProfScholz.de> (2011-09-19)

Schiktanz 2011

SCHIKTANZ, Daniel: *Conceptual Design of a Medium Range Box Wing Aircraft*. Hamburg, Hochschule für Angewandte Wissenschaften Hamburg, Department Fahrzeugtechnik und Flugzeugbau, Master Thesis, 2011.

Scholz 1999

SCHOLZ, Dieter: *Skript zur Vorlesung Flugzeugentwurf*, Hamburg, Fachhochschule Hamburg, FB Fahrzeugtechnik, Abt. Flugzeugbau, 1999