



Master thesis / Student Project

Торіс	Design exploration of a Blended Wing Body with Center-allocated Hydrogen Tanks
Subject focus	Conceptual Aircraft Design, Geometric Parametrization
Contact	DrIng. Stanislav Karpuk, IFL Raum 033 s.karpuk@tu-braunschweig.de, Tel. 0531 / 391 9929
Requirements	 Solid programming skills in one of languages: Python, MATLAB Understanding of fundamentals of conceptual aircraft design Experience with aircraft design software (PRADO, SUAVE, CEASIOM, or other) is a plus Fluency in written and speaking English

Introduction

The need for sustainable and energy-efficient air transport pushes the aviation industries toward the design of next-generation aircraft, with dramatic energy consumption, emission, and noise. The Cluster of Excellence SE2A – Sustainable and Energy Efficient Aviation is an interdisciplinary research center investigating technologies for sustainable and energy-



efficient air transport systems. One of the important streams of technology assessments is related to the overall aircraft design and investigations of unconventional aircraft configurations with future technologies.

The present project is focused on assessments of a hydrogen-powered long-range blended wing body aircraft with novel technologies and an unconventional fuel tanks allocation at the center of the body. The study includes development of a geometric parametrization method for rapid aircraft sizing, sizing of an aircraft with different technologies, and its comparison to the reference aircraft designed before.

Task Description

- Development of a geometric parametrization model of the aircraft with center-allocated fuel tanks
- Integration of the method into the SUAVE design environment
- Sizing of the aircraft using the developed methodology and comparison to the reference aircraft

Start date: Immediate