GKN AEROSPACE

Master Thesis - “CFD analysis of a heat exchanger and comparison with test results” (30 credits/20 weeks – 1 student)

About us

GKN Aerospace is the world’s leading multi-technology tier 1 aerospace supplier. With 55 manufacturing locations in 15 countries, we serve over 90% of the world’s aircraft and engine manufacturers. We design and manufacture innovative smart aerospace systems and components. Our technologies are used in aircraft ranging from the most used civil aircraft to the world’s advanced 5th generation fighter aircraft and the Ariane orbital rockets used by ESA.

Project Background

During 2021 – 2022 a technology program with focus on new and critical components of future jet engine propulsion with hydrogen as fuel has been conducted within GKN Aerospace. A heat exchanger used to recover energy from the exhaust gases has been developed and tested at Chalmers in a simulated environement. The test was performed during the last quarter of 2022 and has been evaluated for comparison with design target. There is still a significant amount of research and method development to be done by using learnings from this test campaign.

Assignment Description

The objective of this study is to compare results from the test with CFD studies made by the thesis student.

- Main content of the thesis:
  - Evaluation of the test results
  - Perform CFD simulations using different simulation setups and comparison with test results
- Project milestones:
  - Define the scope and time plan for the thesis work
  - Litterature study
  - Selection of test conditions for the comparison with CFD simulations
  - Model the heat exchanger for high fidelity CFD analysis
  - Postprocessing and report close out
- Thesis report stating:
  - Best practice for CFD study of heat exchanger of this type.
  - Quantification of accuracy of numerical analysis compared to test

Qualifications

- M.sc student
- Desired background:
  - Completed course(s) in fluid mechanics
  - Knowledge of CFD software
  - Knowledge/completed course in heat transfer

Apply by

Send your resume and cover letter to sonny.andersson@gknaerospace.com .

Last date for application: 2022-10-10.