

Aerospace B.Sc. Turbomachinery Engineering Project

Design and Construction of a Small Turbomachinery Aerofoil Cascade Wind Tunnel

Field of Research

We at the Chair of Turbomachinery and Flight Propulsion are focussing research on the area of novel compressor designs. The engineering project includes conceptual studies, design of compressor aerofoils, experimental evaluation of aerofoil performance, data acquisition and data analysis.



Tasks

- Specification of the various dimensions and overall design (CAD and simple structural proof)
- Specification of fan/blower performance values (flow rate, Ma number), selection/purchase
- Duct cross-sections and shape, contractions, cascade inlet flow uniformity/periodicity of passage pressures
- Design for the aerofoil, cascade rotational positioning and force measurement
- Compressor or turbine cascade with modern loading parameters (Ma, DF, DH, Lift Coeff, etc.)
- Instrumentation in front of and behind the cascade,
- Documentation and presentation

Requirements

- Autonomous, dedicated and accurate style of work
- Engineering project for four to six students
- Interest in engineering challenges in the field of aerodynamic turbomachinery design
- Hands-on mentality
- Advantages:
 - Upfront experience in the field of turbomachinery engineering aspects giving improved pre-requisites for successful passing of upcoming basic turbomachinery exams
 - Programming experience and understanding of aerodynamic measurements techniques

Outcome

You will learn about project management, technical elements such as CAD and 3D printing, instrumentation selection and design, managing time-critical tasks, controlling costs, and widen knowledge of measurement techniques.

Application

Please send us a short email if you want to join the engineering project by the 18th of October, 2023. We are looking forward to your application!

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