

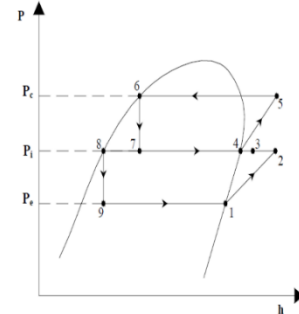
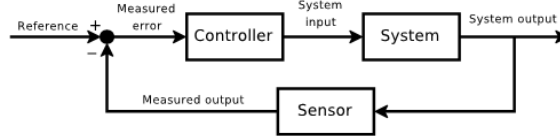
Master Thesis - “Modeling and Control System Design of a Multi-Stage Vapor Compression System” (30 credits/20 weeks – 2 students)

About us

GKN Aerospace is the world’s leading multi-technology tier 1 aerospace supplier. With 33 manufacturing locations in 12 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

As the aviation industry advances, modern aircraft are increasingly equipped with sophisticated technologies and systems that generate significant heat. This necessitates the development of efficient cooling solutions that are high in performance, reliable and lightweight. The multi-stage vapor compression system (VCS) offers a promising approach to meeting these growing cooling demands. This project aims to explore the behavior and control of such a system, providing valuable insights for future applications in aircraft design.



Assignment Description

- Literature Review: Conduct a review of the latest research and developments related to multi-stage VCS cooling systems and their control.
- Model Development: Create a dynamic physical model of a multi-stage vapor compression system.
- Control System Design: Develop a control system for the cooling system, including identifying necessary measurements, determining key control variables, and designing a robust control strategy to ensure performance under varying conditions.
- Simulation and Validation: Simulate the model and control system under different scenarios to validate the performance.
- Performance Analysis: Analyze the performance of the entire system to evaluate how well it meets the cooling needs under various conditions and cooling demands.
- Documentation and Reporting: Compile a comprehensive report detailing the model development, control system design, simulation results, and recommendations for future work.

Qualifications

Students in the final year of their M.Sc. studies in the field of mechatronics, automation, physics, chemical, mechanical-, electrical engineering or similar with interests in modelling, simulations, thermodynamics and control systems.

Spoken and written proficiency in both Swedish and English is necessary.

Application

Send your resume and cover letter to Susanne Norberg

susanne.norberg@gknaerospace.com Last date for application: 2024-12-31.

