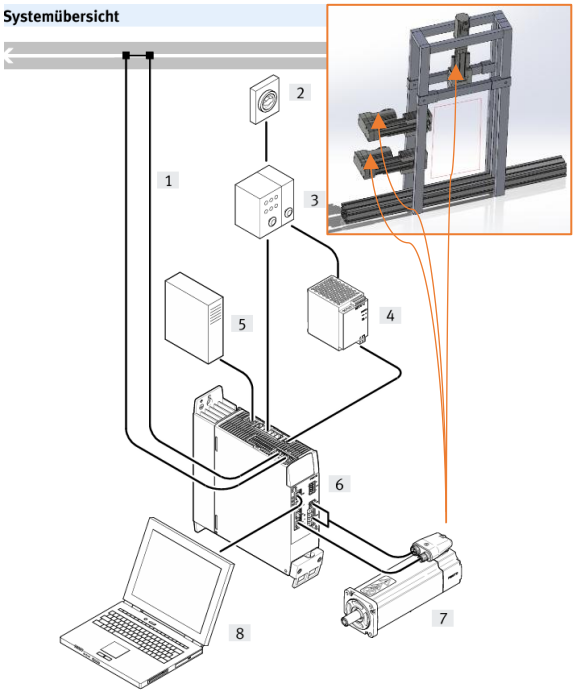
Department of Aerospace and Geodesy
TUM School of Engineering and Design
Technical University of Munich

[LRG0202] Engineering Project / [LRG0003],[LRG0004] Research Practise at the Chair of Aerospace Structure Design:

Controller design for a panel buckling test rig



At the Chair of Aerospace Structure Design a test rig for the experimental investigation of biaxial panel buckling is under development. The objective is to evaluate the mechanical stability of metal and carbon composite panels used in aerospace applications. To achieve this, compression loading must be applied onto test pieces by electric piston actuators in two axes, precisely controlled with force and position sensor data processed in real time.
Within a student group project the actuation control system is to be developed and built.

The project work will contain:

- Familiarisation with the design requirements and the current design stage
- Research and choice of sufficient commercial components
- Introduction into the controller software environment
- Development of an operational procedure and a suitable controller concept
- Self-responsible coordination of work packages within your group
- Close collaboration with workshops, suppliers, other teams and supervisors
- Assembly and operation of the design
- Documentation of the design process in a technical report
- Documentation of the functionality in a user guide
- Presentation of the final approach and results

Start: as soon as possible
Duration: 6 months
Scope of work: M.Sc.Aerospace/M.Sc.Maschinenwesen: [LRG0003]/[ED100042] *Practical Research Course*, [LRG0004]/[ED100041] *Team Project,*
B.Sc.Aerospace: [LRG0202] *Engineering Project*
Working hours: flexible, weekly group meetings
Location: Campus Ottobrunn and remote
Requirements:

- solid experience in programming
- great interest in automation and control engineering
- willingness to work and communicate in a team
- high motivation to deepen your knowledge in relevant technical areas

Beneficial experience:

- control engineering
- good knowledge base in mechanics (statics, elastostatics, dynamics)

Applications may be sent to niklas.moser@tum.de (possible also as a group of 2-3 students) as long as the vacancy is announced on the chair's webpage.