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

[LRG0202] Engineering Project at the Chair of Aerospace Structure Design:
Mechanical design of a panel buckling demonstrator

At the Chair of Aerospace Structure Design a machine for the demonstration and research 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. Moreover, the configuration of the machine should allow for a variation of panel aspect ratios and enable both hinged and clamped boundary conditions for the test pieces.
Within a student group project the mechanical design will be developed and realised.
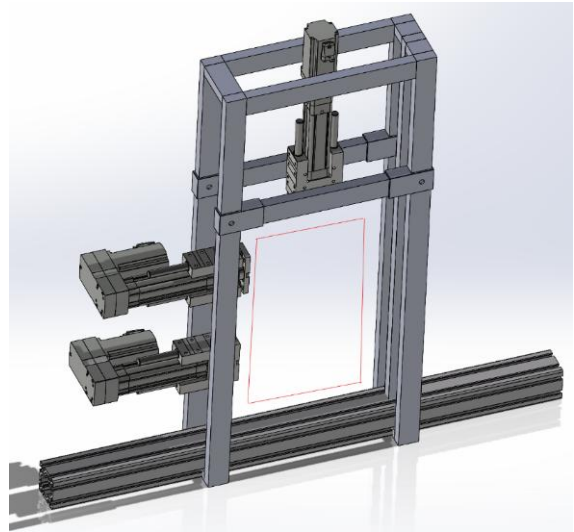
The project work will contain:
- Familiarisation with the design requirements and the current design stage
- Development of a complete mechanical concept
- Research and choice of sufficient commercial components
- Design and analysis of in-house built components
- Self-responsible coordination of work packages within your group
- Strong communication with workshops, suppliers, other teams and supervisors
- Assembly and operation of the design
- Documentation of the design process in a report
- Documentation of the functionality in a user guide
- Presentation of the final approach and results

Start: May 2025
Duration: 4-6 months
Scope of work: B.Sc.Aerospace: [LRG0202] *Engineering Project,*
         M.Sc.Aerospace/M.Sc.Maschinenwesen: [LRG0003]/[ED100042] *Practical Research Course*,
                [LRG0004]/[ED100041] *Team Project*

Working hours: flexible, weekly group meetings
Location: Campus Ottobrunn and remote
Requirements:
- great interest in structural mechanics
- willingness to work and communicate in a team
- solid knowledge base in mechanics (statics, elastostatics, dynamics)
- solid knowledge base in structural analysis
- experience with CAD software
- high motivation to intensify various concerning topics

Beneficial experience:
- Python programming
- FEM simulation control theory

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.