The application of zonal Large-Eddy-Simulation (LES) allows to deal with regions of complex geometry, such as **rough surfaces**, on which RANS models can't capture proper flow behavior. Still, setting proper inlet conditions on the LES zone is required to develop the natural fluctuations encountered in a turbulent boundary layer. Otherwise, the boundary layer will tend towards unphysical solutions.

Task:

1. Investigate proper inlet conditions for LES zones.
2. Simulate turbulent boundary layers on rough surfaces.
3. Apply knowledge for enhancing cooling of aircraft engines.

Requirements:

- Interest in CFD & aerodynamics.
- Basic programming skills.
- Knowledge of CFD tools.

(Student will be trained in the use of FLUENT)

Technische Universität Braunschweig