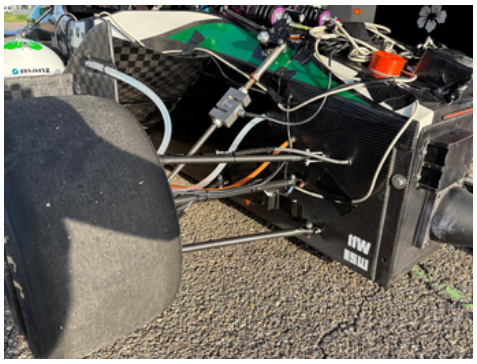


SUGGESTED TOPIC FOR SCIENTIFIC WORK

Mechanical Design/feasibility study of wishbones/pushrods made of CFK



The project focuses on developing, optimizing, and experimentally validating CFRP suspension control arms for a Formula Student race car. It combines aerodynamic and structural design, numerical simulation, manufacturing, and testing to develop a lightweight, structurally efficient, and manufacturable concept. The topic is merely a suggestion and must be finalised with the institute.



Tasks:

- Optimise suspension control arm aerodynamics and structural design
- Develop monocoque and wheel carrier interfaces and attachments
- Perform CLT-based laminate design and FEA using HyperMesh/OptiStruct
- Develop linear and nonlinear buckling models and define load cases
- Investigate alternative composite manufacturing processes, including braiding and RTM
- Manufacture test specimens and prototypes
- Conduct tensile and compression tests and correlate results with FEA predictions

Requirements:

- Passion for Motorsport, Lightweight Engineering and Structural analysis
- Basic CAD Skills
- Basic FEM experience
- Basic Experience with CFK
- Basic Knowledge about fluid mechanics and CFD beneficial