

PROJECT TOPIC
Spring 2026

Absorbition of Vibration of a Small Scale Rocket

Ref Code : ROCKETVIBE
Type : New
Status : Group
Seats : 2 Students



Project Description:

The project involves theoretical/numerical analysis and suppression of vibration of the payload of a rocket to go up at least 8000 feet. The rocket in question is to be designed and built by a team of students in ME Department and will compete in a TEKNOFEST competition.

Work Description:

- Literature survey for vibration analysis of rockets and the sources of rocket vibration
- Modeling the given rocket with some complexity with a finite element code if possible.
- If finite element knowledge is lacking, the rocket will be modeled in a simpler way using MATLAB.
- Vibration analysis to determine modal (natural) frequencies and mode shapes. (The rocket here is a distributed mass and distributed stiffness system.)
- Designing an absorber for the payload of the rocket.
- Vibration analysis with the absorber mounted to determine the reduction in vibration levels of the payload.
- Working together with the team to mount accelerometers on the rocket and its payload so that in-flight vibration levels with an absorber mounted can be measured (and sent to earth with telemetry, but this part is somebody else's responsibility).

Required Qualifications and Skills:

- Appetite for theoretical/numerical analysis.
- Knowledge of the finite element method or MATLAB.
- The project will be on campus.

Related UN Sustainable Development Goals:

- No.9 Industry, innovation and infrastructure.

Difficulty: high (X) medium () low ()

Time commitment: high (X) medium () low ()

Estimated expense: 0 TL