

Development of Thermal Vacuum Test Chamber

Code: 21/31

Company: Newton Launch Systems Ltd

Location: Rickmansworth, Hertfordshire (working from home possible for some of the time).

Company Description:

Newton Launch Systems was established in 2011 to investigate the feasibility of the UK developing its own small satellite launcher in response to the growth in the small satellite market and is now actively pursuing a comprehensive technology development programme. To support the technology programme, Newton is developing a test and evaluation facility at Spaceport Snowdonia in Llanbedr, Gwynedd, including a test stand for static firing of rocket motors, a thermal vacuum chamber (the subject of this placement) and a launch rail. In addition to undertaking its own test programme, Newton intends to offer testing services to other SMEs and universities on a commercial basis starting later in 2021.

Project Description:

The project activities have been formulated on the basis that some of the work will be undertaken in Newton's workshop, but a degree of remote working is likely (i.e. working from home). For this reason much of the focus will be on the design of the system, specification of components and software. The following activities are planned:

1. Determine the cooling requirements based on commercial and practical considerations. The latter will depend on the geometry and thermal mass of the existing chamber.
2. Undertake simple thermal modelling to determine the specification of the chiller unit (i.e. determine the required flow rate of the cooling fluid.)
3. Modify the datalogger software (firmware and pc client software) to accommodate cooling cycles (it is currently for heating only).
4. Fabricate the plumbing for the cooling system and assemble the complete system.
5. Undertake trials to validate performance, analyse the data and write up the results.

Applicant Specification:

Academic: Undergraduate or postgraduate student in science or engineering

Minimum Requirements:

1. 1st year undergraduate or above (or postgraduate)
2. Knowledge of thermal modelling
3. Competence in CAD modelling
4. Experience in experimental data collection and analysis (e.g. lab work)

5. Knowledge of software
6. Experience in programming an Arduino

Preferred Additional Requirements:

1. Practical experience of experimental techniques (including safety)
2. Experience in programming in Python
3. Experience of electronics, including soldering

Further details:

8 weeks minimum fixed term contract to be agreed with successful candidate but nominally with a start date of 21st June to attend the virtual induction event on that day. Salary is £1,500 per calendar month gross.

Closing Date for Applications: 5pm Friday 21 May

Applications should be made through the online form attaching a CV, before the closing date. Please note that elements of the form left incomplete will be deemed to render the application ineligible. They will be checked for eligibility and forwarded to the employer.