

Development of Thermal Vacuum Test Chamber

Code: 20/43

Company: Newton Launch Systems Ltd

Location: Rickmansworth, Hertfordshire (working from home possible for most 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 in 2021.

Project Description:

The project activities have been formulated to permit the applicant to work remotely as much as possible due to Covid-19. The focus will, therefore, be on the design of the system, specification of components and software. The following activities are planned:

1. Design of the test hardware comprising the heater plate, thermocouples, Arduino-based control unit/datalogger). Newton has an existing datalogger, which the applicant may copy and adapt rather than starting from scratch.
2. Write the software to read data from the thermocouples and also to turn the heater on and off as appropriate, depending on the plate temperature and predetermined heating cycle.
3. Set up a trial system incorporating the heater plate, thermocouples and control unit.
4. 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 heat transfer and electrical systems
3. Experience in experimental data collection and analysis (e.g. lab work)
4. Knowledge of software (C++ and Python desirable)

Preferred Additional Requirements:

1. Practical experience of experimental techniques
2. Knowledge of thermal modelling
3. Experience in programming an Arduino

Further details:

8 weeks minimum fixed term contract to be agreed with successful candidate but nominally with a start date in July 2020 to attend the SPIN Induction day, which will be held remotely by the Satellite Applications Catapult. Salary is £1,500 per calendar month gross.

Closing Date for Applications: 5pm Thursday 9 July

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.