

**Oxford Space Systems is a multi award-winning space technology business developing novel deployable spacecraft structures that are lighter, less complex and lower cost than those in current commercial demand.**

**Our vision is to become the leading supplier of highly competitive deployable structures for the global satellite industry. By working with leading academic & commercial collaborators, we're developing genuinely innovative scalable boom, panel and antenna solutions for the world's leading satellite builders.**

**Based at the Harwell Science and Innovation Campus - the UK's Space Cluster - Oxford Space Systems enjoys access to the world-class facilities & expertise of RAL Space, together with support from the UK Space Agency, ESA, Innovate UK and the Satellite Applications Catapult.**

## **Position: Mechanisms Engineer**

### **Main duties**

- Understanding and working to detailed technical specifications
- Perform mechanisms and motor related design, analyses and trade-offs
- Collaborating with specialist departments (stress, thermal, manufacturing, test, etc.) to ensure analyses and test processes satisfy internal/customer requirements
- Preparation of reports for management, project and department
- Carry out trade-offs and preliminary concept designs for early phase studies
- Develop and maintain excellent customer working relationships; including ESA, internal OSS departments and the end customers
- Assist in preparation of technical elements for bids and proposals
- Support other OSS departments on R&D activities
- Contribute to work packages to ensure tasks/activities are completed on time, on cost and on quality
- Support the project lead engineer during development, qualification and acceptance verification/validation
- Work closely with the project manager to ensure schedule and budgets are closely adhered to

### **Essential Skills and Experience**

- Strong Bachelor's or Master's degree-level in Mechanical Engineering or related subject or HNC minimum with strong relevant experience
- Familiar with the basic motor equations and ohms law and their application to simple motor driven systems
- Familiar with the specification and operation of stepper motors (permanent magnet, hybrid), powered and unpowered static torque profiles and their relevance for intermittently powered systems
- An understanding of the different methods of driving stepper motors (unipolar, bi-polar, micro-step, etc.)
- Familiar with the specification, operation and understanding of the speed torque profile of DC and brushless DC motors
- Familiar with open/closed loop drive methods for DC and brushless DC motors and commutation principles for both

- Knowledge of small gearboxes designed to be directly driven by motors such as mentioned above, in particular what elements contribute to efficiency and how to demonstrate margins in a motor + gearbox assembly
- Construction and performance of motors and gearboxes as to be able to influence or make decisions on detail design elements, noting that these items will likely be designed and manufactured by specialist external manufacturers
- Familiar with the specification and operation of:
  - Springs (torsional, linear extension/compression, disk)
  - Dampers (eddy current, FV, friction)
  - Clutches (friction, electromagnetic)
  - Slip rings and brushes
  - Bearings (rolling element, plain)
  - Lead screws and ball screws
  - Sensors (resolvers, encoders, R/LVDTs, force/torque transducers)
- Deep knowledge and understanding of the methods and applications of tribology and vacuum-compatible lubrication to the above mechanical elements
- Familiar with lubricant regimes and their impact on accelerated life testing
- Familiar with the specification and operation of hold down release devices and launch lock principles
- Innovative thinking – the ability to be given technical requirements and to create robust design solutions using own initiative and the ability to critique own ideas
- Very good understanding of mechanical and thermal properties of engineering materials and their practical implementation, correct use of tolerances, engineering drawing standards and manufacturing techniques
- High level of experience using CAD software packages for mechanical design (preferably SolidWorks) is essential
- Proficient in the use of Microsoft Office software
- At least 3 years' experience of working in the space industry is preferred
- Familiarity with ECSS would be a distinct advantage
- The ability to quickly understand new technical concepts is essential

## Personal

- Due to the sensitive nature of projects applicants must be eligible to gain SC clearance (normally have been a UK resident for a minimum of 5 years), exceptions will be reviewed on individual merit
- Good interpersonal skills
- Excellent technical English written/verbal communication and presentation skills
- Self-motivated to meet objectives
- Ability to work both alone and in teams as required by the individual task
- Ability to work within defined timescales to meet programme milestones
- Ability to work on several projects at any one time
- Driven by technical challenges, problem solving and practical implementation of new ideas
- Willingness to learn and share knowledge with other members of the team

If you are interested in working with Oxford Space Systems at this exciting point in the OSS story, then please email your CV and a covering letter to [jobs@oxford.space](mailto:jobs@oxford.space) with the job title you're applying for in the Subject line of the email.

Please note that only suitable candidates will be contacted.

If you are not successful in your application your data will be destroyed within 6 months of your application. We may retain your email details for future opportunities, please inform Oxford Space Systems as part of your application if you do not wish us to hold your personal email.