



Job title	Senior Rotordynamicist	Job family and level	Research Level 5
School/ Department	Faculty of Engineering	Location	Jubilee Campus (Energy Technologies or Research Accelerator Demonstrator Building)

Purpose of role

As part of a varied team, the successful candidate will undertake experimental design, testing, and analysis on a variety of different mechanical test rigs. Significant focus will be placed on one particular project relating to exploring new forms of damping provision that may be suitable for suppressing vibration in the rotors of aero-engines. The successful candidate will have experience working on complex rotating mechanical rigs which are controlled by electrical machines and actuators. The role holder will be responsible for ensuring the programme of work is carried out in a robust, well-managed and well-documented manner.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	<p>Rotordynamics Activities</p> <ul style="list-style-type: none"> ▪ Provide a rotordynamics resource to the rest of the group and to external stakeholders/customers bringing a combination of knowledge, experience, and analytical competencies for this task. ▪ Undertake practical experimentation work on mechanical test rigs with electrical machines and actuators. ▪ Lead on the design and build of experimental equipment and rigs, including doing CAD work and practical build and assembly. ▪ Work on data acquisition and control for rigs, including programming (such as GUI or SCADA) – especially but not exclusively where that relates to vibration data. ▪ Analyse and interpret data taken from experimentation work. 	70%
2	<p>Reporting</p> <ul style="list-style-type: none"> ▪ Attendance at meetings with presentation to internal and external stakeholders. ▪ Timely liaison with internal and external stakeholders to raise and resolve issues/challenges that arise during projects. ▪ Creation of written reports for internal and external stakeholders ▪ Dissemination activities, including paper publication and conference attendance. 	15%

3	<p>Stakeholder Liaison</p> <ul style="list-style-type: none"> ▪ Regular formal and informal liaison will be required with stakeholders, internal and external ▪ Responsible handling of commercially confidential data will be required, including managing the secure electronic storage of this data. ▪ Proactive monitoring and reporting of project milestones/deliverables 	10%
4	<p>Group Collaboration</p> <ul style="list-style-type: none"> ▪ Provide leadership/mentorship to a project team, in collaboration with line managers and project task coordinators, ▪ Supporting the development of team members' knowledge and experience as appropriate for the projects they are engaged on. ▪ Lead and participate in collaborative activities to further enhance group cohesion and development of new proposals/publications. 	5%

Person specification

	Essential	Desirable
Skills	<ul style="list-style-type: none"> ▪ Excellent communication and presentation skills, including excellence at writing in the English language. ▪ Demonstrable ability to organise and lead meetings, recording of meeting information and creation of actions from meetings. ▪ Excellent presentation of complex data, including written presentation, to a wide audience to convey clear messages drawn from analysis. ▪ Ability to independently prioritise actions and effectively communicate when challenges arise. By working with others, including internal and external stakeholders, analyse situations and re-plan to make best uses of resources to ensure delivery of research aim and objectives. ▪ Creating reporting for a wide range of audiences from technical specialists to press releases. 	<ul style="list-style-type: none"> ▪ Project management
Knowledge and experience	<ul style="list-style-type: none"> ▪ Top-quality mechanical design skills, including strong knowledge of fits and clearances as well as knowledge of how specific mechanical designs are signed-off safely. ▪ Demonstrable experience in actual vibration measurement. ▪ Experience of conducting bespoke numerical analyses using Python, Matlab, and/or other coding languages. ▪ Full command of signal analysis in the frequency domain and how this relates to time domain signals. ▪ Ability and willingness to work with controllers, experience with controller coding. ▪ Excellent command of MS Office software, particularly Word and Excel ▪ Knowledge and practical hands-on experience of working with machines, including electrical machines. ▪ Involvement in design and/or development of rotating machines or test rigs. ▪ Experience of publication of academic journal or conference papers. 	<ul style="list-style-type: none"> ▪ CAD and mechanical design skills, including previous use of SolidWorks or other CAD software. ▪ Experience of having supervised draftspersons in generating designs. ▪ Some facility with running FEA and understanding the meaning of results that come from FEA. ▪ Clear understanding of common failure modes of machine components.

Qualifications, certification and training (relevant to role)	<ul style="list-style-type: none"> ▪ Degree in mechanical or electrical engineering or equivalent. ▪ PhD in mechanical or electrical engineering or equivalent experience. 	
Statutory, legal or special requirements	<ul style="list-style-type: none"> ▪ Satisfactory basic disclosure obtained from the Disclosure and Barring Service. 	



The University strongly endorses Athena SWAN principles, with commitment from all levels of the organisation in furthering women’s careers. It is our mission to ensure equal opportunity, best working practices and fair policies for all.

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University’s strategy, vision and values. The following are essential to the role:

- Valuing people** Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.
- Taking ownership** Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.
- Forward thinking** Driven to question the status quo and explore new ideas, supporting the team to “lead the way” in terms of know-how and learning.
- Professional pride** Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.
- Always inclusive** Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

Key relationships with others

