



Job title	Research Associate/Fellow in Bearings Dynamics	Job family and level	Research & Teaching Level 4a/4
School/ Department	Faculty of Engineering, MAS	Location	Jubilee Campus, Energy Technologies Building

Purpose of role

The Mechanical and Aerospace Systems (MAS) research group requires a post-doctoral researcher to work on developing models and undertaking experimentation on bearings, including their dynamic behaviour, and bearing configurations for aerospace applications and beyond. The researcher will undertake a range of activities to achieve the above, requiring knowledge and skills in materials properties and modelling, a good understanding of bearings, and as well as an understanding of experimental techniques. The role holder will report to the principal investigator of the project as their line manager.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	<p>Bearing Modelling and Analysis.</p> <ul style="list-style-type: none"> ▪ The successful applicant will be required to analyse vibrating and/or dynamic systems with bearings. ▪ The successful applicant will be required to aid in the development of analytical bearing models for a range of contact bearing systems. ▪ They will be required to have strong capabilities in signal analysis including frequency decomposition. ▪ The individual will be required to use a range of programming languages such as Python and Matlab. 	45%
2	<p>Bearing Experimentation.</p> <ul style="list-style-type: none"> ▪ The successful applicant will be required to undertake experimentation and post-processing data analysis on bearing test facilities. ▪ The successful applicant will be required to develop creative solutions to problems that arise directly during experimental campaigns. ▪ They will be required to aid in the designing of novel rigs or experimental set up as part of a wider team. 	25%
3	<p>Stakeholders Liaison</p> <ul style="list-style-type: none"> ▪ The role holder will have to make regular reports to industrial and academic partners. ▪ They will be responsible for monitoring and communicating project milestones/deliverables. 	10%

	<ul style="list-style-type: none"> ▪ They will also be expected to explain their work to co-workers within the MAS and occasionally to parties from close collaborators in research groups in other Universities. 	
4	<p>Documentation, Dissemination and Reporting</p> <ul style="list-style-type: none"> ▪ The role holder will be responsible for ensuring that their work is thoroughly documented such that other researchers can advance this work either simultaneously or subsequently. This applies to any computer programming done as well as design calculations and development of research papers. ▪ They will attend meetings with colleagues and stakeholders, both within the university and with industrial partners. ▪ They will be required to produce written reports and journal quality outputs based on their work. The individual will need to ensure that reports are professionally written (in English) and easy to read with minimal support. 	15%
5	<p>Other</p> <ul style="list-style-type: none"> ▪ Researchers within the MAS are expected to contribute to internal seminar and training activities, by attending and, where appropriate, presenting. ▪ The role holder will be asked to ensure that they undertake regular continued professional development. ▪ Any other duties as appropriate to this post as requested by the line manager. 	5%

Person specification

	Essential	Desirable
Skills	<ul style="list-style-type: none"> ▪ Ability to work independently and proactively manage workload whilst highlighting issues and giving potential solutions. ▪ Able to present complex data clearly to a wide audience to show analysis and outcomes. ▪ Experience in technical report / journal paper writing for a specialist audience. ▪ The ability to work in a team and interact professionally with collaborators. ▪ The ability to actively support knowledge exchange 	<ul style="list-style-type: none"> ▪ Project management skills ▪ Good documentation practice for all work, especially relating to computer coding and version control.
Knowledge and experience	<ul style="list-style-type: none"> ▪ Experience of modelling of the dynamics of rolling element bearings. ▪ Experience in using Python, Matlab, and/or other coding languages. ▪ Good general knowledge on a wide range of bearing types and selection criteria for industrial or rig applications. ▪ Excellent knowledge of vibration and rotordynamics. 	<ul style="list-style-type: none"> ▪ Previous experience in designing test facilities, particularly using CAD software. ▪ Experience in control systems and data acquisition. ▪ Practical experience in experimentation, including running test facilities, gathering data, and data analysis.
Qualifications, certification and training (relevant to role)	<ul style="list-style-type: none"> ▪ A PhD (or close to completion) in engineering and/or a related subject area, with an aspect of dynamics, rotordynamics, and/or bearings. 	



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

