Job title	Senior Research Fellow in Electrical Machines	Job family and level	Research and Teaching Level 5
School/ Department	Faculty of Engineering, Power, Electronics, Machines and Controls (PEMC) institute	Location	Jubilee Campus, PEMC

Purpose of role

The purpose of this role will be to lead and deliver individual and collaborative research in electrical machines and make a key contribution to the direction of research programmes in the Power Electronics, Machines and Control (PEMC) Institute in the Faculty of Engineering.

The role will be responsible for generating new intellectual understanding/knowledge through the application of knowledge and for developing ideas for application of research outcomes.
The post holder will sustain and pursue a research plan in more electric aerospace propulsion and will develop new concepts and ideas. Where appropriate, they will develop and win support for innovative research development proposals and funding bids.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	**% time per year**
1	To acquire, analyse, interpret and evaluate research findings/data using approaches, techniques, models and methods selected or developed for the purpose.	30%
2	To establish a national reputation and regularly disseminate and explain research findings through peer-reviewed publications, conferences and other appropriate media.	10%
3	To manage the application of a range of methodologies, approaches and techniques appropriate to the type of research personally being pursued. Where appropriate investigate and devise research methods and approaches.	10%
4	To communicate complex and conceptual ideas to those with limited knowledge and understanding as well as to peers, using high level skills and a range of media.	10%
5	Be responsible for managing and/or monitoring assets and budgets allocated and the use of research resources to ensure that effective use is made of them.	10%
6	Be responsible for resolving problems to meet research objectives and deadlines.	10%
7	To take the lead on, plan, develop and conduct individual and/or collaborative research objectives, projects and proposals either as an individual or as part of a broader programme.	5%

8	To generate income by developing and winning support for innovative research proposals and funding bids.	5%
9	To build relationships and collaborate actively with internal and external contacts, nationally and if appropriate internationally to complete research projects and to advance the discipline.	5%
10	Be responsible for the safe conduct of work within work area ensuring that the School's arrangements for compliance with the University Safety Policy are implemented.	5%

Person specification

	Essential	**Desirable**
Skills	• Excellent oral and written communication skills, including the ability to communicate with clarity on complex and conceptual ideas to those with limited knowledge and understanding as well as to peers, using high level skills and a range of media. • High level analytical capability to facilitate conceptual thinking, innovation and creativity. • Ability to build relationships and collaborate with others, internally and externally. • Ability to devise, advise on and manage research programmes. • Highly motivated, self-starting individual • Strong organisational and project management skills • Calm and positive attitude in working collaboratively with a wide range of stakeholders internally and externally, sometimes on challenging and complex multidisciplinary issues • Practical laboratory skills	• Practical powertrain laboratory experience and skills (instrumentation specification and setup, test design and execution etc.)
Knowledge and experience	• Excellent understanding of high voltage electric systems and	• Experienced in electrical systems testing (battery and/or electrical machine)

	experimental practice • Prior experience research in insulation systems. • Previous experience within collaborative projects involving multiple industry partners • A consistent track record of published research in peer reviewed journals. • Successful track record of multidisciplinary research with both industry and academic partners, with a willingness to work in new technical areas related to the programme (potentially involving short placements at UK based partners). • Experience of experimental and analytical thermal management of related electric propulsion sub-systems, with an established international track record of high impact outputs. • Understanding of propulsion thermal management analysis and testing. • Experience of reliability testing of electrical machines.	• Direct experience of PhD student co-supervision • Experience of National Instruments data acquisition and MATLAB • Experience of electrical power system thermal management testing and analysis • Experience with testing different insulation systems and materials.
Qualifications, certification and training (relevant to role)	• MSc, MEng or BEng in Electrical or Mechanical engineering (or closely related i.e. Automotive, Aerospace) • PhD in an appropriate field	

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