UNIVERSITY OF WARWICK

Job Description

Job title	Research Fellow – Battery Sensing and Metrology
Department	WMG
Grade	6

Job purpose (a brief summary of the role)	Undertake research in order to support the work of the department and develop and enhance its reputation, both internally and externally. Mentor colleagues with less experience and conduct individual or collaborative research projects.
Duties and responsibilities	**Principal Accountabilities** • To work with the academic investigator, to create and maintain a research plan aligned to project requirements, that will include experimental research, academic reporting/presentation and publication. • To define and execute an experimental program of research that may include sensor specification, cell modification/manufacture and testing. The design, fabrication of test fixtures and electronic circuitry, the analysis and post-processing of experimental results relating to both battery, manufacturing and sensor performance. • To present and report research findings to our academic partners and funder • To disseminate research outputs through appropriate academic journals and conferences • To support the research, education, dissemination and operational activities of the wider research group, as defined by the Head of Group. **Research and scholarship** 1. Establish a sound research base within the department in order to develop research objectives, projects and proposals. 2. Identify sources of funding and contribute to the process of securing funds to support a developing research agenda. 3. Extend, transform and apply knowledge acquired from scholarship to research and appropriate external activities. 4. Write or contribute to publications or disseminate research findings using other appropriate media. 5. Make presentations at conferences or exhibit work in other appropriate events. 6. Routinely 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. **Teaching and Learning Support** 1. Could be expected to contribute to the teaching and learning programmes in the department. 2. May be expected to supervise postgraduate research students. 3. May be involved in the assessment of student knowledge. **Administration and Other Activities** 1. Collaborate actively within and out side of the institution to complete research projects and advance thinking. 2. Undertake specific departmental roles as may be required. 3. May be required to attend departmental meetings and to participate (where necessary) in other committees and working groups within the department, the faculty and the University. 4. Participate in relevant professional activities.

	5. Ensure compliance with health and safety in all aspects of work and, when appropriate, undertake risk assessments. 6. Participate in and develop external networks, for example to identify sources of funding, generate income, obtain projects, or build relationships for future activities.

Person Specification

The Person Specification focuses on the essential and desirable knowledge, skills, experience and qualifications required to undertake the role effectively. This is measured by (a) Application Form, (b) Test/Exercise, (c) Interview, (d) Presentation.

Essential Criterion No.	Essential Criterion Description	Measured by
E1	Good honours degree and possession of a PhD or equivalent in relevant discipline, in the areas of engineering (electrical or electronic), control and communications, metrology.	A
E2	A proven understanding and ability to undertake experimental research using novel techniques of battery measurement to evaluate battery manufacturing and cell performance.	A,C & D
E3	A good understanding of battery performance and manufacturing processes – specifically at the formation stage of manufacture.	A,C & D
E4	A proven ability to collaborate with academic partners to co-create, deliver and report on experimental research.	A,C & D
E5	A proven ability to post-process and analysis complex battery test data using tools such as MATLAB.	A,C & D
E6	Ability to design and fabricate novel test fixtures (where appropriate) and programme electronic circuits for data recording and communication, including the use of experimental hardware such as National Instruments.	A,C & D
E7	Proven ability and achievements in research, demonstrated by high-quality publications record or equivalent output.	A,C & D
E8	Engaged in continuous professional development.	A & C
E9	Understanding of equal opportunity issues as they may impact on areas of research content.	A & C
E10	Able to use a range of delivery techniques to enthuse and engage students.	A & C
E11	Good effective communication (oral and written) skills, presentation and training skills.	A,C & D
E12	Good interpersonal skills.	A & C
E13	Ability and willingness to work as a member of a team and contribute positively to a collegial team environment and to be able to work independently.	A & C
E14	Ability to initiate, plan organise, implement and deliver programmes of work to tight deadlines.	A & C
E15	Ability to write research reports and papers in styles accessible to both academic and, where relevant, industry audiences.	A & C

Desirable Criterion No.	Desirable Criterion Description	*Measured by*
D1	Understanding of lithium-ion battery technology, including commong characterisation methods and test equipment (e.g., EIC, energy capacity, pulse power.	A,C & D