

Job Description

Please complete all accessible boxes and refer to the guidance on writing Job Descriptions

| Position Details | | |
|--------------------------------------|---|-----------------|
| Faculty/Professional Support Service | Faculty of Science and Engineering | |
| School/Department | Department of Engineering | |
| Job Title | Senior Postdoctoral Research Associate | |
| Grade | 8 | £39,347-£45,585 |
| Hours of Work | Full time | |
| Contract Duration (Perm/Fixed Term) | Fixed Term Contract—6 months | |
| Reports To (Job Title) | Dr. Alexandros Paspatis, Senior Lecturer] | |
| Responsible For (Job Title) | Dr. Alexandros Paspatis, Senior Lecturer] | |

| Principal Accountabilities |
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| <p>The main purpose of this role is to undertake research and development tasks in the field of inverter-based storage devices.</p> <p>Engage in collaborative efforts with senior research staff and industrial partners. Assume responsibility for the efficient management of the research project, as guided by the project coordinators. This includes strategic planning, execution, and monitoring of project activities, with a focus on achieving set milestones and objectives</p> |

| Key Tasks |
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| <p>Research Activities: Control Development for Membraneless Redox Flow Batteries</p> <p>The project aims to provide a power system-driven design and optimisation of the control schemes and power electronic interfaces of the flow battery under development by HalioGen Power.</p> |

The key objective of the project is the development of an advanced Energy Management System (EMS) that will unlock the battery's potential for various applications, such as microgrids and energy communities.

By combining the EMS with the battery system, its battery management system (BMS) and the power electronic interfaces, this project will deliver a comprehensive, market-ready solution for the integration of the reliable and efficient flow battery system into power systems.

CANDIDATE REQUIREMENTS:

Candidate must be familiar with advanced control of inverter-based resources and the relevant analysis and validation skills, i.e., stability analysis and EMT simulation.

The project requires a candidate ready and able to work independently.

Skills and experience in laboratory testing of inverter-based resources will be beneficial.

Plan and prioritise own day to day work and resources to achieve agreed research objectives, leading the research work.

Undertake quality research and detailed analysis, and present findings to appropriate supervisors and external partners, via seminars/research meetings.

Write up results of own research and prepare for presentation to research team and relevant stakeholders.

Use initiative and judgement to develop appropriate techniques in order to facilitate research work and resolve problems affecting the achievement of objectives and deadlines.

Service Provision

Keep supervisors and relevant stakeholders updated on progress, and be responsible for exploring their needs, and acting on feedback, in order to ensure that research delivers against their requirements.

Collaborate with senior academic staff to organise, manage and carry out appropriate research.

Respond to enquiries and requests for information from academic staff and relevant stakeholders, when required.

Proactively and effectively engage with quality assurance procedures to ensure that University standards are upheld.

Teamworking

Actively participate as a member of the research team, providing mutual support to achieve successful completion of projects.

Attend research meetings/seminars as appropriate and proactively contribute to decision making

Special Features

N/A.

Miscellaneous

You have a legal duty, so far as is reasonably practicable, to ensure that you do not endanger yourself or anyone else by your acts or omissions. In addition you must cooperate with the University on health and safety matters and must not interfere or misuse anything provided for health, safety and welfare purposes.

You are responsible for applying the University's Equal Opportunities Policy in your own area of responsibility and in your general conduct.

You have a responsibility to promote high levels of customer care within your own areas of work.

You are expected to co-operate with the PDR process, engaging in the setting of objectives in order to assist in the monitoring of performance and the development of the individual.

Such other relevant duties commensurate with the grade of the post as may be assigned by the Manager in agreement with you. Such agreement should not be unreasonably withheld.

You may be required to undertake a specific Health & Safety role, commensurate with your grade, to support the University in meeting its statutory Health & Safety obligations. This could include acting as a DSE Assessor, First Aider, Fire Marshall or Departmental Safety Co-ordinator. The allocation of such roles will be subject to the provision of appropriate training and assessment of competence.

You may, with reasonable notice, be required to work at any of the Manchester Metropolitan University sites.

You have the responsibility to engage with the University's commitment to Environmental Sustainability in order to reduce its waste, energy consumption and carbon footprint.

You have the responsibility to engage with the University's commitment to delivering value for money services that optimise the use of resources and therefore should consider this when undertaking all duties and aspects of your role.

Review

This is a description of the job at the time of issue. It is the University's practice periodically to review and update job descriptions to ensure that they accurately reflect the current nature of the job and requirements of the University and to incorporate reasonable changes where required, in consultation with the job holder.

Person Specification

In order to be shortlisted you must demonstrate that you meet all the essential criteria and as many of the desirable criteria as possible. Where we have a large number of applications that meet all of the essential criteria, we will then use the desirable criteria to produce the shortlist.



All disabled candidates who meet the minimum essential criteria will be included on the shortlist.

| Selection Criteria | | | | |
|--------------------|--------------------------------|------|---|------|
| Attributes | | Item | Relevant Criteria | Rank |
| 1 | Skills & Abilities | 1.1 | Experience in developing and analysing control schemes for inverter-based resources. | E |
| | | 1.2 | Experience in laboratory validation of inverter-based resources. | D |
| | | 1.3 | Ability to lead the work of a research team, co-ordinating effort and resources | D |
| 2 | General & Specialist Knowledge | 2.1 | Proficiency in the development of primary, secondary or tertiary (EMS) control schemes for inverter-based resources grid integration | E |
| | | 2.2 | Possess sufficient breadth of specialist knowledge to work within established research programmes . | E |
| | | 2.3 | Preferably, proficient in using hardware-in-the-loop simulation equipment for testing of inverter-based resources and their controls. | D |

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|-------------------------|----------------------|-----|--|--------------------|
| 3 | Education & Training | 3.1 | A Masters level qualification in a relevant area and evidence of continuous professional development. | E |
| | | 3.2 | [PhD degree in a relevant subject, related to inverter-based resources grid integration]. | D |
| 4 | Relevant Experience | 4.1 | <p>Significant research experience in the field of inverter-based power systems, which should have included:</p> <ul style="list-style-type: none"> • making a demonstrable, independent contribution to projects • developing partnerships with internal and external agencies • using initiative, creativity and judgement to develop appropriate approaches to research • synthesising complex data from different sources and communicating findings via written reports | D |
| 5 | Special Requirements | 5.1 | N/A | |
| Date of Revision | | | September 2024 | |
| Key | | | Rank | E Essential |
| | | | | D Desirable |