

JOB TITLE: RESEARCH ASSOCIATE in Water Engineering

Anaerobic Digestion and Waste Water Treatment

Job Ref: REQ171079

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

Job Description:

A Research Associate (RA) is required to work on a British Council, Newton Fund, Institutional Links project: Technical Integration of Sustainable Energy and Water (TISEW), which is a research partnership between Loughborough University and the University of Bahrain. This collaboration aims to establish a permanent Research Centre for Sustainable Energy and Water at the University of Bahrain, strongly linked to the Centre for Renewable Energy Systems Technology (CREST) at Loughborough University and to the Bahrain Sustainable Energy Unit (SEU). The appointed RA will work on waste-water and energy-from-waste aspects of the collaboration, having specific interests in anaerobic digestion and nutrient recovery. The RA may be required to visit Bahrain once or twice during the project.

The appointed RA will work within the Water and Environmental Engineering Group, which is part of the School of Architecture, Building and Civil Engineering and has around 30 staff specialising in water and wastewater treatment, pollution modelling, microbiology, pollutant analysis, urban drainage and flooding, energy-from-waste and the management of water and waste in developing countries. The Group has major laboratory facilities, including environmental and water laboratories which were refurbished in 2011. They include zone 2 containment standards for bioprocessing work and specialised constant temperature rooms for anaerobic mesophilic and thermophilic bioreactor simulation trials. There is also a pilot plant room for scale-up experiments complementing other Bio-Engineering facilities for medical and biochemical research at the University. The analytical facilities available are to ISO standards for metals and organics in drinking, surface and waste waters, soils and air samples. This includes enzyme-immuno assay, mass spectrometry and ICP for analysis to nanogramme levels. There are also analytical facilities for image analysis and particle size profiling. There are scanning electron microscopes and X-ray diffraction equipment in the adjacent building.

Job Grade: Specialist and Supporting Academic Grade 6

Job Purpose:

To conduct research within the TISEW project, particularly focusing on water and waste-water treatment including anaerobic digestion and in close collaboration with partners in Bahrain.

Job Duties:

- To review and assess opportunities for and barriers to anaerobic digestion and biogas generation in Bahrain.
- To characterise the biodegradability of the various types of locally (UK and Bahrain) available biomass (predominantly food waste and sewage sludge).
- To carry out laboratory experiments to measure biogas yields from the different biomass.
- To operate pilot AD plant in the laboratory at Loughborough.
- To work on mapping of wastes available for biogas generation in Bahrain.
- To carry out trials and data analysis of novel methods for digester scale down (mixing, heating,

remote monitoring and gas balancing).

- To maintain detailed records of the methodology and results and to report on progress verbally, in writing, and through other appropriate media.
- To lead in the preparation of collaborative publications arising from the work.
- To collaborate closely with project co-workers and partners in Loughborough and Bahrain.
- To attend project consortium meetings and present technical information and results using appropriate media.
- To contribute to the development of dissemination and educational material arising from the project for use within the Schools and industry as appropriate.

Other Supporting Activities:

- To participate in relevant professional activities.
- To comply with appropriate health and safety requirements.
- To engage in training programmes in the University and elsewhere as required.
- To undertake such other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.

Points to Note:

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility entailed.

Special Conditions:

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equality & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Respecting Diversity and, where appropriate, Recruitment and Selection.

Organisational Responsibility:

Reports to: Dr Tanja Radu.

Person Specification:

Applications will be reviewed against the essential and desirable criteria listed below. Applicants are strongly advised to explicitly state and evidence how they meet each of the essential (and desirable) criteria in their application. Stages of assessment are as follows:

- 1 – Application
- 2 – Presentation
- 3 – Interview

Essential Criteria:

Area	Criteria	Stage
Qualifications	First Degree and/or Masters in Energy, Environmental Engineering, Biotechnology or related discipline.	1
	PhD or near completion	1
Experience	Experience of conducting research in Anaerobic Digestion (AD), Waste Water Treatment or related area.	1,2,3
	Experience of running AD experiments and/or operating AD plant.	1,3
	Experience of conducting biomass, waste, monitoring and standard analysis.	1,2,3
	Experience of working in an internationally recognised academic research or industrial R & D environment.	1,3
	Experience of authoring original papers in academic journals and/or technical reports.	1
	Experience of presenting technical work at scientific meetings.	1
Skills and abilities	Ability to plan and conduct original research.	2,3
	Ability to work independently and as part of a team.	1
	Excellent communication skills.	2,3
	Excellent IT skills.	1
Training	Willingness to undertake appropriate further training and to adopt new procedures as and when required.	1
Other	Commitment to observing the University's Equal Opportunities Policy at all times.	3
	Ability and willingness to travel both in UK and to Bahrain.	1,3

Desirable Criteria

Area	Criteria	Stage
Qualifications	PhD or near completion in Energy, Environmental Engineering, Biotechnology or related discipline.	1
Experience	Experience in any of the following: waste water treatment, waste pre-treatment techniques fibre/food waste analysis, biomass characterization, desalination, and solid waste management.	1,3
	Experience of conducting research at post-doctoral (or equivalent) level.	1,3
	Experience of presenting technical work at conferences.	1,3
	Experience of supervising students.	1,3
Skills and abilities	Knowledge of UK Higher Education.	1,3

	Knowledge of Water, Energy and Environmental Industries.	1,2,3
	Ability to help secure additional research/project funds from external/company sources.	1,3
Qualifications	PhD or near completion in Energy, Environmental Engineering, Biotechnology or related discipline	1
	Ability to develop software within a PC environment.	1,3

Conditions of Service:

The position is full-time and fixed term for 11 months (part-time options may be considered over a 12 month period). Salary will be on Specialist and Supporting Academic Grade 6, £29,799 - £30,688 (pro rata) per annum, at a starting salary to be confirmed on offer of appointment. Subject to annual pay award.

The appointment will be subject to the University's normal Terms and Conditions of Employment for Academic and Related staff/Operational and Administrative staff, details of which can be found [here](#).

The University is committed to enabling staff to maintain a healthy work-home balance and has a number of family-friendly policies which are available at <http://www.lboro.ac.uk/services/hr/a-z/family-leave-policy-and-procedure---page.html>.

We also offer an on-campus nursery with subsidised places, subsidised places at local holiday clubs and a childcare voucher scheme (further details are available at: <http://www.lboro.ac.uk/services/hr/a-z/childcare-information---page.html>).

In addition, the University is supportive, wherever possible, of flexible working arrangements. We also strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a Bronze Athena SWAN award which recognises the importance of support for women at all stages of their academic career. For further information on Athena SWAN see <http://www.lboro.ac.uk/services/hr/athena-swan/>

Informal Enquiries:

Informal enquiries should be made to Dr Tanja Radu, by email at: T.Radu@lboro.ac.uk, or by telephone on (01509) 223808.

Applications:

The closing date for receipt of applications is **6 December 2017**.