Department/School of xxx

Research Associate in *(Bio)Chemical Engineering*
Algae-based carbon capture and utilisation scale-up

Job Ref: REQ250084

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

School/Department summary can be inserted here, if desired.

Project Description

This 24-month position is part of a Loughborough-led project to demonstrate the commercial viability of our novel two-stage algae-based carbon capture and utilisation concept, using surplus renewable electricity to convert industrial CO^2 emissions into valuable algal products (e.g., food supplements, pigments, bio-fertiliser). We will work closely with several strategic industrial partners, to target algae products that maximise value for their business, mimic site-specific conditions in our laboratories and explore opportunities for further integration with their existing processes. The technology will be subsequently scaled and tested for on-site trials with one of these partners to test real-life system performance. The project is funded through UKRIs 'Accelerating research outcomes to deliver a prosperous net zero' scheme and includes partners from Heriot-Watt University, University of Manchester and Glasgow Caledonian University.

The post is based in the Departments of Chemical Engineering (School of Aeronautical, Automotive, Chemical and Materials Engineering) and Water Engineering Group (Architecture, Building and Civil Engineering) at Loughborough University. You will be responsible for screening and selecting suitable strains for bicarbonate-based algae culture, establishing continuous system operation to evaluate key performance parameters for two-stage culture, planning and conducting onsite trials with selected project partner, as well as closely collaborating and supporting other project researchers.

We are committed to achieving equality for all those who learn and work here and providing a diverse and inclusive working environment. We will consider reasonable adjustments commensurate with the project requirements.

Job Description

Job Grade: Specialist and Supporting Academic Grade 6

Job Purpose [suggested wording to be tailored to specific role to provide a <u>brief concise</u> overview of the purpose of the role]
To lead the selection and identification of high-performance algae strains for converting industrial waste gases into value-added products based on close engagement with industrial stakeholders. To translate the findings from laboratory experiments into scale-up trials on-site to aid the commercial evaluation of the process.

Job Duties [suggested wording to include a breakdown of <u>at least</u> 3 project specific requirements of the role]

- *To identify, screen and select high-performance halophilic algae strains for cultivation under industrial relevant conditions.*
- *To develop suitable technical protocols for rapid growth screening, product extraction and analysis.*
- *To establish stable continuous operation of two-stage carbon capture and algae utilisation system.*
- *To closely work with partners and suppliers to design and commission a scale-up system for on-site trials.*
- *To collaborate with our academic and industrial project partners, including short and medium-term visits, and coordinate activities across the consortium*
- *To perform risk assessments and adhere to all relevant safety procedures.*
- *To become familiar with / undertake a literature review / establish / evaluate*

[Applicable to all positions – Delete as Appropriate]

- To formulate detailed plans for the project based on broad guidance from the project team.
- To feed back to the project team on progress, to make recommendations for next steps.
- Write up regular progress reports and present outcomes to all Investigators and Collaborators.
- Travel to attend meetings and make presentations both within the project partners working group and to external stakeholders.
- To support the project team by enhancing relationships with existing collaborators and by assisting the establishment of relationships with new collaborators.
- To write research papers suitable for publication in high quality academic journals.
- To attend and contribute to conferences.
- Maintain confidentiality at all times and ensure that intellectual property (IPR) agreements are not violated.
- To assist the academic staff in the project team with the supervision of undergraduate MSc and PhD project work and day-today supervision and support of other researchers.
- Where appropriate, to deliver teaching, tutorial and laboratory sessions to students.
- Engage in training programmes in the University (or elsewhere) that are consistent with the needs and aspirations of the project and those of the Department.
- Undertake 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 Jonathan Wagner, Reader in Circular Economy Engineering

Person Specification

Your application will be reviewed with respect to meeting the essential and desirable criteria listed below. Your application 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 – Test/Assessment Centre/Presentation
3 – Interview

Essential Criteria

Area	Criteria	Stage
Experience	Background in Chemical Engineering, Chemistry, Biotechnology, or other relevant technical discipline]	1
	Experience in experimental design, equipment development, continuous operation	1,3
	Experience of developing and delivering independent research plan with minimum guidance	1,2,3
	Authoring original work for academic journal papers, conference papers or technical reports	1,2,3
Skills and abilities	*Ability to work across multiple fields and readily understand new and challenging concepts*	1,3
	Ability to complete basic chemical engineering calculations including mass and energy balances, equipment sizing and separation processes	1,3
	Excellent written and oral communication skills	1,2,3
	Self-motivated with ability to meet deadlines	1,3
	Excellent interpersonal, and organisational skills	1,3
	Working knowledge of software packages [*Excel, Word, PowerPoint*]	1,3
	Working knowledge of specific analytical methods relevant to project, such as GC, HPLC, TOC/TON, biochemical analysis, Raman, UV-vis, FTIR, ICP	1,3
	Ability to write project reports and make technical presentations to industrial and academic research groups	1,3
	Knowledge of relevant Health & Safety issues	1,3
Training	A willingness to undertake further training as appropriate and to adopt new procedures as and when required	1,3
Qualifications	PhD (or near completion) in Chemical Engineering, Chemistry, Biotechnology or other relevant subject	1
Other	Commitment to observing the University's Equal Opportunities policy at all times.	3
	Willingness to travel and do medium-term visits to project partners	3

Desirable Criteria

Area	Criteria	Stage

Experience	*Experience in algae cultivation, including aseptic techniques*	1,2,3
	Experience of working within multidisciplinary teams and collaborating with industrial partners	1,2,3
	Developing proposals for funding from external agencies	1
	Experience of teaching and / or supervision of students in relevant areas	1,3
Skills and abilities		
	A strong publication track record	1
Qualifications		
Other	Willingness to adapt flexible working hours where required, such as weekend sampling of algae cultures	3

Conditions of Service

The position is FULL TIME and FIXED TERM. Salary will be on Specialist and Supporting Academic Research, Grade 6, Salary Band £34,866 - £45,163 per annum, at a starting salary to be confirmed on offer of appointment. The appointment will be subject to the University's Terms and Conditions of Employment for STAFF GRADES 6 AND ABOVE, 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 can be found here.

The University offers a wide range of employee benefits which can be found here.

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/

Applications

The closing date for receipt of applications is **10th March 2025**