Postdoctoral Research Associate in Offshore Renewable Energy Engineering: Advanced structural design and analysis

Department	Naval Architecture, Ocean and Marine Engineering (www.strath.ac.uk/engineering/navalarchitectureoceanmarineengineering/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Research	Reference No	638303
Reports To	Professor	Grade	7
Salary Range	£36024 - £44263	Contract Type	Fixed Term (24 months)
FTE	1 (35 hours/week)	Closing Date	02/09/2024
Working Arrangements	Hybrid. The standard requirement across the University is that at least three days per week (based on 1FTE) will be spent working on-site (with flexibility as appropriate).	On Site Facilities	Car parking, sports centre, catering.
Holidays	31 days + 11 statutory days Option to purchase additional holidays.		
Pensions	Contributory pension scheme available to all staff including generous employer contribution.		
Training	Professional Development with Organisational and Staff Development Unit (OSDU) plus external training if required.		
Family Friendly Benefits	Generous parental leave provision, on-campus nursery and options for flexible working.		
Health and Wellbeing	University Sport centre, Occupational Health service, access to health and wellbeing events, cycle to work scheme, Employee Assistance Programme, agile working and established carers support network and carer friendly policies.		

Job Advert

The Department of Naval Architecture, Ocean and Marine Engineering of the University of Strathclyde is currently leading an Engineering and Physical Sciences Research Council (UK)funded project the research flagship programme called "Ocean REFuel". The Ocean-REFuel project brings together a multidisciplinary, world-leading team of researchers from 5 UK universities to design, analyse, and optimise a whole-energy system to maximise ocean renewable energy (Offshore Wind and Marine Renewable Energy) potential for conversion to zero carbon fuels, focusing on hydrogen. The project has transformative ambition addressing a number of big questions concerning our Energy future:

- How to maximise ocean energy potential in a safe, affordable, sustainable and environmentally sensitive manner?
- How to alleviate the intermittency of the ocean renewable energy resource?
- How ocean renewable energy can support renewable heat, industrial and transport demands through vectors other than electricity?

- How ocean renewable energy can support local, national and international whole energy systems?

Ocean-REFuel is a large project integrating upstream, transportation and storage to end use cases which will over an extended period of time address these questions in an innovative manner developing an understanding of the multiple criteria involved and their interactions.

We are looking for a Research Associate that will be integrated in the team working on work package 1, which focuses on the upstream processes in the offshore environment, from extracting the renewable energy source and converting it to electricity, to the conversion of electricity into Hydrogen, to its storage and transportation to shore. The main research areas are:

- Offshore structures: design, analysis and optimisation of a decentralised floating offshore wind turbine equipped with electrolysers
- Offshore structures: feasibility assessment, design and optimisation of an offshore hydrogen storage/buffering system
- Assessment and analysis of the best option to transport the hydrogen to shore

The core of the methodology is based on the development of a Multidisciplinary Design, Analysis, and Optimisation (MDAO) framework for these innovative offshore platforms, not only including the main tecno-economic objectives and constraints considered when designing an offshore renewable energy device, but also considering the cross-cutting social and environmental aspects, fed by the other work packages' results. From a technical point of view, the focus is on aero-hydro-servo-elastic coupled model of dynamics to the design and analysis of floating offshore wind turbines.

Job Description

Brief Outline of Job:

The main activities and responsibilities, as well as the requirements to be considered for this role, are listed below in the tables.

The role involves advanced structural design and analysis of offshore renewable energy devices, in particular applied to offshore wind and hydrogen infrastructure structural integrity and including using structural analysis specialist software (e.g. ABAQUS or similar). Risk and structural reliability analysis and optimisation, Non-Destructive Evaluation, Structural Health Monitoring.

Main Activities/Responsibilities:

1.	As part of a wider research group or programme, develop research objectives and proposals for own or joint research and play a lead role in relation to a specific project/s or part of a broader project, with guidance from senior colleagues as required.
2.	Plan and manage own workload, with guidance from colleagues as required.
3.	Conduct individual and/or collaborative research, including determining appropriate research methods and contributing to the development of new research methods.
4.	Identify sources of funding and contribute to the securing of funds for research, including drafting grant proposals and planning for future proposals.
5.	Write up research work for publication, individually or in collaboration with colleagues, and disseminate results as appropriate to the discipline by, for example, peer reviewed journal publications and presentation at conferences.
6.	Join external networks to share information and ideas, inform the development of research objectives and to identify potential sources of funding.
7.	Collaborate with colleagues to ensure that research advances inform departmental teaching effort.
8.	Collaborate with colleagues on the development of knowledge exchange activities by, for example, participating in initiatives which establish research links with industry and influence public policy and the professions.
9.	Supervise student projects, provide advice to students and contribute to teaching as required by, for example, running tutorials and supervising practical work.
10.	Contribute in a developing capacity to Department/School, Faculty and/or University administrative and management functions and committees.
11.	Engage in continuous professional development.

Person Specification

Educational and/or Professional Qualifications (E=Essential, i.e. a candidate must meet all essential criteria to be considered for selection, D=Desirable)	
E1	Good honours degree and PhD (or equivalent professional experience) in an appropriate discipline i.e. naval architecture, ocean/mechanical/structural engineering
D1	Membership of relevant Chartered/professional bodies (including Higher Education Academy).
Experience	
E2	Sufficient breadth or depth of knowledge in the relevant discipline/s to contribute to research programmes and to the development of research activities.
D2	Some relevant work experience.
D3	Experience of relevant student supervision and teaching activities.
D4	Experience of research in industry / closely collaborating with industry.
Job Related Skills and Achievements	
E3	Developing ability to conduct individual research work, to disseminate results and to prepare research proposals.
E4	Ability to plan and organise own workload effectively.
E5	Ability to work within a team environment.
D5	Structural design and analysis of offshore renewable energy devices, in particular applied to offshore wind and structural integrity, including proficiency in using structural analysis specialist software (e.g. ABAQUS or similar).
D6	Risk and structural reliability analysis and optimisation, Non-Destructive Evaluation, Structural Health Monitoring.
Personal Attributes	
E6	Excellent interpersonal and communication skills, with the ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences.

Application Procedure

Applicants are required to complete an application form including the name of three referees who will be contacted without further permission, unless you indicate that you would prefer otherwise. Applicants should also submit a Curriculum Vitae and a covering letter detailing the knowledge, skills and experience you think make you the right candidate for the job. Applicants should also complete the Equal Opportunities Monitoring Form.

Other Information

Further information on the application process and working at Strathclyde can be found on our website (http://www.strath.ac.uk/hr/workforus).

Informal enquiries about the post can be directed to Feargal Brennan, Professor of Offshore Engineering (feargal.brennan@strath.ac.uk).

Conditions of Employment

Conditions of employment relating to the Research staff category can be found at: Conditions of Employment.

Rewards and Benefits

Our staff have access to a wide range of outstanding benefits that include financial rewards, family friendly and wellbeing benefits and career development opportunities, details of which can be found here.

Probation

Where applicable, the successful applicant will be required to serve a 9 month probationary period.

Pension

The successful applicant will be eligible to join the Universities' Superannuation Scheme. Further information regarding this scheme is available from Payroll and Pensions.

Relocation

Where applicable, the University offers a relocation package to support new employees who meet the eligibility criteria. The relocation package is offered as a contribution towards costs incurred, and is designed to be flexible, allowing staff to use the financial support available in the way that will be most helpful to them. Further details are outlined in the Relocation Policy.

Interviews

Formal interviews for this post will be held on 10/09/2024.

Equality and Diversity

The University of Strathclyde is a socially progressive institution that strives to ensure equality of opportunity and celebrates the diversity of its student and staff community. Strathclyde is people-oriented and collaborative, offering a supportive and flexible working culture with a deep commitment to our equality, diversity and inclusion charters, initiatives, groups and networks.

We strongly encourage applications from Black, Asian and minority ethnicity, women, LGBT+, and disabled candidates and candidates from lower socio-economic groups and care-experienced backgrounds.

University Values

The University's Values capture what we're all about: who we are, what we believe in and what we stand for. Our Values have been derived from how we act and how we expect to be treated as part of Strathclyde.