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University of Strathclyde Glasgow

Research Associate in Offshore Renewable Energy Engineering: Design and Dynamics Modelling

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	399389
Reports To	Head of Department through Professor Maurizo Collu	Grade:	7
Salary Range:	£33309	Contract Type:	Fixed Term (36 months)
FTE	1 (35 hours/week)	Closing Date	27/10/2021

Job Advert

The Department of Naval Architecture, Ocean and Marine Engineering of the University of Strathclyde has secured research funds from the Engineering and Physical Sciences Research Council (UK) to conduct a major research flagship programme called "Ocean REFuel". The Ocean-REFuel project brings together a multidisciplinary, world-leading team of researchers from 5 UK universities to consider, at a fundamental level, a whole-energy system to maximise ocean renewable energy (Offshore Wind and Marine Renewable Energy) potential for conversion to zero carbon fuels. 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 lead the research in 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 questions that this WP aims to answer are:

- Offshore structures: better a single, integrated platform carrying on all the services (energy extraction, conversion, hydrogen production, storage), or several single-purpose, modular platforms?
- Would it be better to produce hydrogen offshore or onshore? And to store it onshore or offshore?
- Would it be better to transport the hydrogen with vessels or pipelines?

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.

Job Description

Brief Outline of Job:

To undertake a specific research project/s under the general guidance of a research leader; to establish a personal research portfolio and plan research proposals, with assistance from senior colleagues as required; to engage where required in relevant teaching, professional and knowledge exchange activities; and input to administrative activities.

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/aerospace/mechanical 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 Design and analysis of offshore renewable energy devices, in particular offshore wind turbines, including proficiency in using offshore structures analysis specialist software (i.e. Sesam by DNV, OrcaFlex, OpenFAST, and similar)
D6 Multi-disciplinary design and optimisation (MDAO) analysis, even if applied in other engineering field, including proficiency in using a relevant software package (OpenMDAO, Dakota by Sandia, modeFrontier by ESTECO, and similar).
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 before interview 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 Maurizio Collu, Professor in Offshore Renewable Energy Engineering (maurizio.collu@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.

Equality and Diversity

We value diversity and welcome applications from all sections of the community.

The University currently holds a Bronze Athena SWAN award, recognising our commitment to advancing gender equality in academia across all academic disciplines and professional and support functions.

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.


Athena
SWAN
Bronze Award

disability
confident
EMPLOYER

CARER POSITIVE
Employer in Scotland
EXEMPLARY

happy to
talk flexible
working

Healthy
Working
Lives
Gold Award

COVENANT
PROUDLY
SUPPORTING
THOSE WHO
SERVE.