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Job Description

Post title: **Research Fellow in Ship Efficiency and Zero-Carbon Shipping**

Date last updated/evaluated: January 2025

Author: Dr Tahsin Tezdogan

Standard Occupation Code: 2119 – Natural and social science professionals

School / Department: School of Engineering / Department of Civil, Maritime and Environmental Engineering

Faculty / Directorate: Faculty of Engineering and Physical Sciences

Job Family: Education, Research and Enterprise (ERE)

Grade: Level 4

ERE Pathway (if applicable): Research

Post reporting to: Dr Tahsin Tezdogan

Post line report(s): -

Post base location: Boldrewood Innovation Campus

Job purpose: Research: Contribute to an externally funded research project by developing advanced methodologies at the intersection of computational fluid dynamics (CFD) and ship design. The role is typically focused on the integration of physics-informed AI models within ship design and optimisation workflows. The post-holder will be expected to conduct independent and collaborative research, supported by appropriate guidance and supervision, contributing to impactful outputs aligned with the University’s Maritime Engineering Group.

Leadership, Management and Engagement: Planning own work and contributing effectively to leadership, management and engagement activities, with appropriate guidance, support and supervision. The post-holder will be expected to support engagement and dissemination activities, including contributions to academic publications, open-access tools, stakeholder engagement, and sector-wide knowledge exchange.

## Key accountabilities and indicative time allocation:

1. **70%**

**Research Contribution**:

* Contribute to the externally funded research project by developing and applying advanced computational techniques in ship design, optimisation, and simulation, with a focus on integrating generative AI and physics-informed models.
* Develop rigorous and original research outputs that enhance understanding of AI-driven design frameworks and their application to sustainable and manufacturable vessel concepts.
* Regularly produce and/or contribute to research outputs, establishing visibility and credibility among subject-relevant research communities, within and beyond the University.
* Contribute to income proposals.
* Collaborate and network productively with colleagues in own and other departments, disciplines and/or organisations. Engage with a range of public groups, partners or organisations, as appropriate.
* Develop knowledge and understanding of research methodologies (e.g., computational fluid dynamics and ship design techniques); select and apply these effectively.
* Contribute to the effective co-creation, sharing of and engagement with research and research findings by a range of audiences (e.g., academic peers, practitioners, policymakers, publics), using a range of methods (e.g., peer-reviewed publications, conferences, public engagement, outreach, media releases).
* Ensure that research outputs are findable, accessible, interoperable and reproducible (FAIR) and, wherever possible, open access.
* Take opportunities to ensure research activities benefit educational practice.
* Contribute to the supervision of postgraduate students and/or research assistants.

1. **10%**

**Leadership, Management and Engagement Contribution**:

Building on the Leadership, Management and Engagement contributions inherent in other Level 4 activities:

* Plan and prioritise own work effectively.
* Undertake defined tasks and contribute effectively to team, department or School-level management, engagement, administration or project work.
* Contribute to short-term and medium-term planning.
* Develop an understanding of School, Faculty and University strategies and objectives.
* Contribute to the wider work of the Faculty and University through effective participation in working groups and committees (e.g., Equality, Diversity and Inclusion committees and self-assessment teams, Health and Safety committees, Research Ethics committees etc.).
* Advise and assist colleagues and students.
* Support and help ensure the health and wellbeing of colleagues.
* Mentor colleagues and support their development.
* Effectively engage in probation, appraisal, career development and continuing professional development activities.
* Contribute to student recruitment activities.
* Help prepare for and/or participate in visit days, open days and public engagement activities
* Use discretion and judgement to select from or adapt existing processes and procedures to achieve outcomes.

1. **10%**

**Education Contribution**:

* Building experience and competence in scholarly educational practice, with appropriate guidance, support and supervision. Work is typically focused on delivery of teaching and learning activities.

1. **5%**

To allocate 10 days a year (pro rata if part-time) to undertake training and continuing professional development (CPD), develop research identity and leadership skills in line with the Researcher Development Concordat.

1. **5%**

Any other duties as allocated by the line manager following consultation with the post holder.

Internal and external relationships:

Collaborate with other academic staff in the Department of Civil, Maritime and Environmental Engineering, particularly in the Maritime Engineering Group.

Work in partnership with administrative and technical staff supporting research and project delivery.

Establish and maintain effective working relationships with the external consortium partners

Liaise with industrial stakeholders, project sponsors, and other collaborators, including classification societies and regulatory bodies as required.

Contribute to engagement with the wider maritime innovation community and CFD and AI research networks nationally and internationally

Special requirements:

To attend national and international conferences for the purpose of disseminating research results.

# Person Specification – Skills and Competencies

All essential and desirable criteria outlined in this Person Specification will be assessed through a combination of recruitment application and CV, and where applicable numerical or written assessment.

**Knowledge, Experience and Qualifications**

Essential

* Substantial and authoritative practical knowledge and experience in maritime engineering, supported by detailed understanding.
* The required level of knowledge and understanding will normally have been gained through some or all of the following:
  + Considerable work experience
  + Vocational training
  + Formal qualification(s) equivalent to Level 7 or 8 of the [Regulated Qualifications Framework](https://www.gov.uk/what-different-qualification-levels-mean/list-of-qualification-levels) e.g. master’s degree, postgraduate certificate, diploma, PhD in naval architecture, marine technology, mechanical engineering or Level 7 or 8 award, certificate, diploma.
* Publication track record in maritime engineering, mechanical engineering, ocean engineering or naval architecture

Desirable

* Teaching qualification (PGCAP or equivalent).
* Knowledge of ship resistance and propulsion, seakeeping and manoeuvring.
* Experience in marine CFD.
* Membership of Higher Education Academy.
* PhD in Naval Architecture and Marine Engineering.
* Demonstrated commitment to maintaining professional knowledge and awareness through continuing personal and professional development.
* Understanding of the Concordats relevance to research.

**Teamwork and Communication**

Essential

* Delegates and/or collaborates effectively, understanding the strengths and weaknesses of colleagues.
* Works proactively with colleagues and other stakeholders, within and beyond the University, to achieve outcomes.
* Communicates effectively to develop understanding and achieve cooperation.
* Provides clear advice, guidance and recommendations on novel or complex concepts and issues.

Desirable

* Able to present research results at group meetings and conferences

**Planning, Organisation and Resource Management**

Essential

* Plans and progresses education, research and/or knowledge exchange and enterprise activities within broad guidelines and established University policies and procedures.
* Formulates development plans to meet current skill requirements.

Desirable

* Experience in coordinating research activities within a multi-partner project or consortium, including tracking deliverables, managing competing priorities, and ensuring timely completion of tasks

**Problem Solving and Initiative**

Essential

* Develops detailed understanding of long-standing and/or complex problems and applies accumulated knowledge and experience to understand and/or resolve them.
* Demonstrates an awareness of principles and trends within a specialist field and awareness of how this affects education, research and/or knowledge exchange and enterprise activities in the University.

Desirable

* Experience developing or adapting novel research methodologies or tools to address interdisciplinary problems in maritime design, optimisation, or fluid dynamics

# Job Hazard Assessment

For any hazards identified below a health clearance will be undertaken by our occupational health provider and form part of recruitment checks. Further ongoing clearance may be required for some roles, including for existing members of staff.

**Does the risk assessment identify the need for ongoing health surveillance for this role? No**

## Physical Environment

Working outsideNot applicable

Exposure to noise levels >80dbA Not applicable

Working with dust or fumes Not applicable

Working with skin irritants/sensitisersNot applicable

Working with chemicals (industrial or cleaning)Not applicable

Working in a confined spaceNot applicable

Working at heightNot applicable

Working with sewage Not applicable

Contact with cytotoxinsNot applicable

Exposure Prone Procedure (EPP) work Not applicable

Direct patient care or patient contact / Contact with clinical  
specimens or pathology work Not applicable

Ionising radiation Not applicable

## Psychological and Social Environment

Working shifts Not applicable

Working nightsNot applicable

Lone working Not applicable

Working with children Not applicable

Exposure to persons with challenging behaviourNot applicable

## Equipment, Tools and Machines

Working with vibrating machinery or toolsNot applicable

Driving duties Not applicable

Driving LGV, PCVs Not applicable

Driving forklift trucks Not applicable

Food handling Not applicable

Contact with latexNot applicable

## Physical Abilities

Prolonged repetitive movements or actions Not applicable

Moving or handling heavy loadsNot applicable

# Behaviours

Our [Inclusion and Respectful Behaviour Policy](https://www.southampton.ac.uk/about/governance/regulations-policies/policies/inclusion-respectful-behaviour) describes the expectations of everyone who is a part of our community.

Our **Southampton Behaviours** (below) outline the responsibilities we each have in working collaboratively to achieve our University strategy.

**Personal Leadership**

- I take personal responsibility for my own actions and an active approach towards my development.

- I reflect on my own behaviour, actively seek feedback and adapt my behaviour accordingly.

- I demonstrate pride, passion and enthusiasm for our University community.

- I demonstrate respect and build trust with an open and honest approach.

**Working Together**

- I work collaboratively and build productive relationships across our University and beyond.

- I actively listen to others and communicate clearly and appropriately with everyone.

- I take an inclusive approach, value the differences that people bring and encourage others to contribute and flourish.

- I proactively work through challenge and conflict, considering others’ views to achieve positive and productive outcomes.

**Developing Others**

- I help to create an environment that engages and motivates others.

- I take time to support and enable people to be the best they can be.

- I recognise and value others’ achievements, give praise and celebrate their success.

- I deliver balanced feedback to enable others to improve their contribution.

**Delivering Quality**

- I identify opportunities and take action to make improvements.

- I plan and prioritise efficiently and effectively, taking account of people, processes and resources.

- I am accountable for tackling issues, making difficult decisions and seeing them through to their conclusion.

- I encourage creativity and innovation in others, to deliver workable solutions.

**Driving Sustainability**

- I consider the impact on people before taking decisions or actions that may affect them.

- I embrace, enable and embed change effectively.

- I regularly take account of external and internal factors, assessing the need for change, and gaining support to move forward.

- I take time to understand our University strategy and communicate this to others.