Research Fellow / Engineer (Renewable Energy and Coastal Protection) - TZY6
Singapore Institute of Technology

Job Title Research Fellow / Engineer (Renewable Energy and Coastal Protection) - TZY6

Department

Institution Singapore Institute of Technology
Singapore, , Singapore

Date Posted Dec. 20, 2024

Application Deadline Open until filled

Position Start Date Available immediately

Job Categories Research Scientist/Associate

Academic Field(s) Ocean Engineering

Job Website https://careers.singaporetech.edu.sg/cw/en/job/498822/research-fellow-engineer-renewable-energy-and-coastal-protection-tzy6

Apply By Email

Job Description

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Job no: 498822
Department: Engineering
Contract type: Contract
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As a University of Applied Learning, SIT works closely with industry in our research pursuits. Our research staff will have the opportunity to be equipped with applied research skill sets that are relevant to industry demands while working on research projects in SIT.

The researcher will be part of the team of the MCCS NATURE Project (https://www.nparks.gov.sg/Cuge/Programmes-Schemes/Research%20Programmes/MCCS%20Programme). The primary role involves developing and validating CFD models to study wave attenuation by mangroves, seagrass, and coral. Responsibilities include calibrating simulations with experimental data, analyzing shear coefficients and drag forces, and contributing to interdisciplinary research on coastal protection, with an emphasis on delivering accurate and impactful modeling insights.

Key Responsibilities

• Participate in and manage the research project with Principal Investigator (PI), Co-PI and the research team members to ensure all project deliverables are met.
• Undertake these responsibilities in the project:

1. Wave Stochastic Analysis and Hydrodynamics
• Conduct advanced stochastic analysis of wave environments to evaluate the performance of floating structures.
• Analyze hydrodynamic behavior of floating breakwaters under varied sea conditions.

2. CFD and Finite Element Modeling
• Perform Computational Fluid Dynamics (CFD) simulations to optimize the design and performance of floating breakwaters.
• Develop finite element models for stability assessment, structural integrity, and dynamic response of floating systems.

3. Connector Design
• Design and analyze mechanical connectors for the integration of multi-purpose floating breakwater systems, ensuring structural stability and durability.

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4. Design and Integration
• Develop innovative designs for floating breakwaters that integrate wave energy converters (WECs), tidal energy systems, and solar energy platforms.
• Optimize design configurations to maximize energy harnessing and wave attenuation.

5. Experimental Testing
• Plan and conduct physical model tests in wave flumes or basins to validate computational models.
• Analyze experimental data to improve and validate the floating breakwater design.

6. Research Documentation and Dissemination:
• Prepare technical reports, research papers, and presentations to disseminate findings to academic and industry stakeholders.
• Contribute to project proposals and progress updates for funding agencies.
• Carry out Risk Assessment, and ensure compliance with Work, Safety and Health Regulations.

7. Project Management Support:
• Ensure timely execution of project milestones
• Coordinate with external collaborators and manage data-sharing protocols.
• Work independently, as well as within a team, to ensure proper operation and maintenance of equipment.

Job Requirements

- PhD/Master’s in Naval Architecture, Ocean Engineering, Civil Engineering, or related field.
- Proficiency in hydrodynamic modeling tools (e.g., ANSYS AQWA, OrcaFlex) and finite element analysis software (e.g., Abaqus, ANSYS).
- Experience with stability and mooring system design.
- Strong analytical skills and familiarity with data collection instruments and techniques.
- Excellent communication and report-writing abilities.
- Good understanding of industry standard will be an advantage
- Ability to work independently and in teams in both lab and field environments.
- Excellent communication (verbal and written) and teamwork abilities

Key Competencies

- Able to build and maintain strong working relationships with people within and external to the university.

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- Self-directed learner who believes in continuous learning and development
- Proficient in technical writing and presentation
- Possess strong analytical and critical thinking skills
- Show strong initiative and take ownership of work

Apply now
Advertised: 20 Dec 2024 Singapore Standard Time
Applications close: 30 Jun 2025 Singapore Standard Time

Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact

Singapore