Research Fellow / Engineer (Modular system x NAMIC) - TZY7
Singapore Institute of Technology

Job Title Research Fellow / Engineer (Modular system x NAMIC) - TZY7
Department Engineering
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
Naval Architecture & Marine Engineering
Civil Engineering

Job Website https://careers.singaporetech.edu.sg/cw/en/job/498823/research-fellow-engineer-modular-system-x-namic-tzy7

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Job Description

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Job no: 498823
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 NAMIC Project for 3DP Modular Floater. The Research Engineer will play a critical role in the development, validation, and optimization of 3D-printed modular floating structures. This includes conducting hydrodynamic analysis, finite element modeling, and stability assessments, as well as overseeing site-based test bedding, data collection, and reporting. The role also involves designing and validating connectors for the modular system to ensure mechanical integrity and adaptability.

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. Hydrodynamic Analysis:
• Conduct simulations to analyze wave interactions, buoyancy, and stability of modular floating structures.
• Optimize designs for dynamic environmental conditions (e.g., waves, tides, currents).

2. Finite Element and Structural Modeling:
• Develop and implement finite element models to evaluate structural integrity under load conditions.
• Perform stress, strain, and fatigue analysis for modular components and connectors.

3. Stability Modeling:
• Analyze stability characteristics of modular floating units under static and dynamic conditions.
• Collaborate with teams to develop safe and efficient modular layouts.

4. Design and Development of Connectors:
• Design robust, durable connectors for modular systems to ensure seamless assembly and operational reliability.
• Validate connector performance through simulations and physical testing.

5. Site Test Bedding and Validation:
• Oversee the deployment and testing of modular systems at designated sites.

Research Fellow / Engineer (Modular system x NAMIC) - TZY7

Singapore Institute of Technology

• Ensure proper instrumentation setup for data collection and monitoring.

6. Data Collection and Analysis:
• Gather experimental data during site trials, including hydrodynamic, structural, and environmental parameters.
• Analyze data to validate models and identify areas for design improvement.

7. Reporting and Documentation:
• Prepare detailed technical reports on findings, including recommendations for system enhancements.
• Present outcomes and progress updates to stakeholders and collaborators.

8. Collaboration and Communication:
• Work closely with multidisciplinary teams, including material scientists, engineers, and field technicians.
• Liaise with external partners and vendors for test site setup and equipment.

9. Compliance and Safety:
• Ensure compliance with regulatory requirements and industry standards for floating structures.
• Maintain high safety standards during field operations and laboratory testing.

10. 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.

11. 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

- 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.

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Singapore Institute of Technology

- Experience in designing connectors or mechanical interfaces is a plus.
- Familiarity with 3D printing technologies and materials is advantageous.
- Strong analytical skills and familiarity with data collection instruments and techniques.
- Excellent communication and report-writing abilities.
- 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.
- 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