Electrical Engineer I/Electronics Technician (Alvin)

Job Summary

Woods Hole Oceanographic Institution is currently searching for an Electrical Engineer I/ Electronics Technician to join the Alvin Submersible Engineering and Operations Group. This is a regular, full-time, exempt position and is eligible for benefits.

Alvin is the world's most famous and prolific human occupied submersible, continually operating since its commissioning in 1964. For over five decades, and 5000+ dives Alvin has advanced our understanding of the Earth's ocean environments, uncovering many significant scientific discoveries along the way.

The Alvin Group is currently seeking a highly motivated, technically competent and responsible Electronics/Electrical Engineer to join our operations team. With supervision, a successful candidate applies electronic/electrical aptitude and acquired knowledge of established procedures to the maintenance, troubleshooting and repair of vehicle related equipment used in the operation and support of the Alvin submersible.

This is a physically demanding position requiring the ability and willingness to spend six-to-eight months per year at sea. The remainder of the year's workload would be at the institution and requires a local residence. After an initial training period, the position would allow for minimally supervised maintenance on the vehicle, and additional qualifications to perform key submersible support roles. Exceptional candidates will be entered into the Alvin Pilot in Training program with the goal of completing qualifications as Alvin Pilot in Command.

This is an entry-level position designed to encourage the connection and application of academic training to results-orientated projects in support of scientific and research activities. Initially this position will have direct supervision to achieve structured and assigned objectives.

Essential Functions

This position requires individuals to possess a strong electrical background, meticulous work habits, superb attention to detail, excellent interpersonal skills, solid work ethic, self-motivation and professionalism, which are hallmarks of Alvin engineering and operations personnel.

Specific tasks include (but not limited to):

- Apply and follow written procedures to maintain, test, and repair submersible electronic/electrical systems and equipment associated with the operation of the submersible. Examples include digital and analog circuits, battery components, power supplies, relays and power distribution systems, motors (DC brushless) and controllers, serial data systems and networks, underwater camera and video systems, etc.

- Preparation and interface of scientific equipment and sensors used with the submersible.

- Maintenance and repair of fiber-optic components and equipment.
- Use of electronic test equipment (multi-meters, oscilloscope, fiber-optic testing equipment, etc.)
- Participate in all phases of the vehicle launch, recovery and surface support activities.
- Complete the training required to qualify as an Alvin support technician, support swimmer, launch coordinator, and launch system operator and surface coordinator.
- With a combination of directed training and significant self-study, complete the training program necessary to become a qualified Alvin Pilot
- Go to sea up to 8 months a year in support of Alvin operations.
- Applies basic research principles and standard laboratory instrumentation to engineering design effort.
- Tests designs, calibrates instrumentation, and troubleshoots mechanical/electronic systems.
- Develops computer code, microprocessor code, and uses CAD, CAE tools.
- Participates in report writing to document instrumentation developments and tests.
- Develops basic practical engineering skills to enhance technical competence and versatility

**NON-ESSENTIAL FUNCTIONS:**

- As deemed necessary by supervisor

**Education & Experience**

- Engineering degree or other appropriate discipline with minimal work experience, or evidence of an established, specialized engineering skill gained through experience in the absence of a formal degree.
- 3-5 years of applicable experience in electrical/electronic systems maintenance. Alternatively, a BS in Electrical Engineering or similar curriculum with two years of practical experience is preferred
- At-sea experience desired. ROV, AUV and/or manned submersible experience a plus.
- Strong aptitude for evaluating and repairing analog and digital electrical and electronic components and systems. Must be capable of analyzing equipment problems using drawings/documentation and schematics in conjunction with test equipment and procedures.
- Windows and Linux operating system fluency, serial and network communications protocols, embedded processor hardware development, schematic capture and CAD software.
- Use and evaluation of electrical and electronic test equipment.
- Basic proficiency in the use of common mechanical tools.
- Strong aptitude in completing detailed maintenance documentation and reporting.
• Experience with mechanical, electromechanical and battery systems is a plus.

Physical Requirements

Physical duties for this position include but are not limited to, ability to lift 25-50 lbs independently, 2-3 times per day; carry 25-50 lbs, 3-4 times per day. Visual abilities to include near, far, and peripheral vision, depth perception, ability to distinguish basic colors. Hearing requirements include the ability to hear and respond to instructions, and communicate effectively in loud areas. Other abilities include talking, traveling, working around others, working with others, and working alone. Other physical tasks include occasional prolonged standing/walking; use of hands for basic /fine grasping and manipulation, reaching above and below the shoulders, and kneeling, bending, and stooping. Will be exposed to excessive cold, heat, and/or humidity, grease and oils, dust and other irritants, hazardous substances or specimens, electrical/mechanical/power equipment hazards, prolonged work hours, severe weather conditions, and/or extended periods at sea. Physical duties are subject to change

Sea Duty

May work at least 8 hours per day and, at times in excess of 12 hours per day, 7 days per week. Sleep and work hours can deviate from those on land. May be expected to work on watch schedule (such as 8 hours on and 8 hours off or 12 hours on and 8 hours off) for all or part of a cruise or to work as hours are needed to accomplish the planned work. May need to travel during holidays and for long distances to and from foreign ports. May experience rudimentary living and working conditions, with shared and basic living quarters and laboratories. May experience bad or extreme weather conditions, including heavy seas, winter weather or hot, tropical weather. Work on deck may occur in both hot and cold conditions around the clock. Sea conditions will lead to active ship motion. Should be able to climb steep and vertical ladders and able to enter and exit compartments through hatches, doors, and sills. Should be able to carry heavy gear and participate in the loading and unloading of the ship as well as in the activities on deck and in the labs during the cruise. Shipboard environment may include: confined areas, shared sleeping quarters (berths) and bathroom facilities, small and basic berthing, fixed meal times and basic menus. Modest levels of heating, cooling, ventilation, and illumination, limited or no email and internet access and limited off-duty and recreational facilities (library, lounge, movies). May be exposed to potential allergens and irritants, including paint fumes. May experience constant and intermittent loud noises, and slippery and uneven surfaces.