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| Last updated: | June 2022 |

**JOB DESCRIPTION**

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| Post title: | **Instrumentation Engineer** | | |
| School: | Ocean and Earth Science | | |
| Faculty: | Environmental and Life Sciences | | |
| Career Pathway: | Technical and Experimental (TAE) | Level: | 4 |
| Posts responsible to: | Principal investigator | | |
| Posts responsible for: | None | | |
| Post base: | Non Office based | | |

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| Job purpose |
| To provide specialist technical support to the School of Ocean and Earth Science, To be responsible for the maintenance, testing, mobilisation and operation at sea of a high-voltage electromagnetic source and associated towed receivers. This equipment is deployed around the world in experiments to study the interior of the Earth. |

| Key accountabilities/primary responsibilities | | % Time |
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|  | To ensure specialist technical support by maintaining and developing capabilities in the generation of controlled source electromagnetic signals in the ocean and recording of these signals by towed receivers:   * Maintain equipment in good working order * Mobilise/demobilise equipment before/after operation at sea, taking charge of all associated shipping and customs arrangements * Initiate new developments to support more effective equipment operation at sea or adapt to the requirements of a different vessel * Ensure that any data generated are managed in a reliable and robust way * Document approaches developed, and train research team members to provide support where needed | 75 % |
|  | Be responsible for operation of the equipment at sea, leading a small team to prepare, deploy, navigate, recover and service equipment, and providing associated datasets to the research team | 10 % |
|  | Interact with the research team during planning and operational phases of a project to ensure that project objectives are safely met | 5 % |
|  | Organise and manage the laboratory work environment in Southampton and at sea. | 5 % |
|  | Any other duties allocated by the line manager following consultation with the post holder. | 5% |

| Internal and external relationships |
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| The post holder will work closely with staff and research students working in marine electromagnetics and with staff supporting seagoing geophysical activity.  The post holder will liaise with:   * External research project partners * External clients * Relevant suppliers and external contacts   At sea, the post holder will be expected to undertake their duties as part of an integrated team and to adopt priorities and engage in activities that promote the effective working of the whole team. |

| Special Requirements |
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| To maintain the relevant level of professional expertise and qualifications to discharge the duties of an Instrumentation Engineer and to agree with line manager on a relevant professional development programme.  To be able to obtain relevant certification in installation and operation of offshore high-voltage electrical systems.  To have an understanding of how equality, diversity and inclusion applies to the responsibilities of the role and to actively promote equality, diversity and inclusivity in all aspects of the role.  This job will require foreign travel to support experiments at sea, typically once or twice per year for 30-40 days each.  This job requires that the post holder pass and maintain STCW95 personal survival training and ENG1 medical certificates within 1 month of commencement of employment, and to be able to pass and maintain a BOSIET. |

**PERSON SPECIFICATION**

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| Criteria | Essential | Desirable | How to be assessed |
| Qualifications, knowledge and experience | Skill level equivalent to achievement of HND, Degree, NVQ4 or basic professional qualification in technical, engineering or science and/or equivalent technical experience  Knowledge/experience of power electronics, analogue circuit skills and micro-controller embedded systems  Experience working (including good fault-finding down to circuit board levels) with 16/32-bit microcontroller embedded systems  Ability to make effective use of standard and specialist computer systems  Experience of project management | Skill level equivalent to achievement of Masters degree in electronics/engineering  Experienced/qualified in offshore High Voltage (1000-2000Vac) electrical installations/power transmission systems, such as ROV operations and installations  Experience of operating instrumentation in the marine environment  Experience with basic software development, scripting | Application & Interview |
| Planning and organising | Proven effective project, budget, and time management skills  Ability to proactively identify, plan and manage own workload, including fully planning and owning technical projects.  Ability to plan and carry out detailed logistical tasks  Ability to work with others to:   * Agree requirements. * Meet project deadlines. * Design testing procedures. * Produce documentation to required standards. |  | Application & Interview |
| Problem solving and initiative | Ability to apply specialist technical knowledge to analyse complex problems and recommend solutions/plans of action, coordinating this with other research team members  Experience of solving practical engineering/mechanical problems.  Methodical, calm and clear thinking  Confidence, experience and skills to take initiative, but know when to refer queries upwards.  Able to work on own initiative and undertake self-directed learning |  | Application & Interview |
| Management and teamwork | Able to work as part of a highly technical team, and to collaborate effectively with other technical specialists on project work and towards the resolution of problems.  Ability to foster good relationships with colleagues and other members of the organisation. | Experience in development of firmware and software to support parallel hardware developments | Application & Interview |
| Communicating and influencing | Effective presentation skills in order to convey technical concepts to research team members.  A professional approach to service delivery. | Involvement in relevant technical communities. | Application & Interview |
| Special requirements | Willingness to undertake Health and Safety training specific to role.  Willingness to work at sea  Ability to pass and maintain ENG1 medical certification  Ability to pass and maintain BOSIET and STCW95 personal survival certification  Willingness to travel globally to board or visit research vessels or to visit external clients  ~~The post-holder will~~ occasionally required to work flexible or unsociable hours to meet operational needs. | NEBOSH / IOSH | Application & Interview |

**JOB HAZARD ANALYSIS**

**Is this an office-based post?**

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| **[ ] Yes** | If this post is an office-based job with routine office hazards (eg: use of VDU), no further information needs to be supplied. Do not complete the section below. |
| [ X] No | If this post is not office-based or has some hazards other than routine office (eg: more than use of VDU) please complete the analysis below.  Hiring managers are asked to complete this section as accurately as possible to ensure the safety of the post-holder. |

## - HR will send a full PEHQ to all applicants for this position. Please note, if full health clearance is required for a role, this will apply to all individuals, including existing members of staff.

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| **ENVIRONMENTAL EXPOSURES** | **Occasionally**  (<30% of time) | **Frequently**  (30-60% of time) | **Constantly**  (> 60% of time) |
| Outside work | X |  |  |
| Extremes of temperature (eg: fridge/ furnace) |  |  |  |
| ## Potential for exposure to body fluids |  |  |  |
| ## Noise (greater than 80 dba - 8 hrs twa) |  |  |  |
| ## Exposure to hazardous substances (eg: solvents, liquids, dust, fumes, biohazards). Specify below: |  |  |  |
| Frequent hand washing |  |  |  |
| Ionising radiation |  |  |  |
| **EQUIPMENT/TOOLS/MACHINES USED** | | | |
| ## Food handling |  |  |  |
| ## Driving university vehicles(eg: car/van/LGV/PCV) | X |  |  |
| ## Use of latex gloves (prohibited unless specific clinical necessity) |  |  |  |
| ## Vibrating tools (eg: strimmers, hammer drill, lawnmowers) |  |  |  |
| **PHYSICAL ABILITIES** | | | |
| Load manual handling | X |  |  |
| Repetitive crouching/kneeling/stooping | X |  |  |
| Repetitive pulling/pushing | X |  |  |
| Repetitive lifting | X |  |  |
| Standing for prolonged periods | X |  |  |
| Repetitive climbing (ie: steps, stools, ladders, stairs) | X |  |  |
| Fine motor grips (eg: pipetting) | X |  |  |
| Gross motor grips | X |  |  |
| Repetitive reaching below shoulder height | X |  |  |
| Repetitive reaching at shoulder height | X |  |  |
| Repetitive reaching above shoulder height | X |  |  |
| **PSYCHOSOCIAL ISSUES** | | | |
| Face to face contact with public | X |  |  |
| Lone working |  |  |  |
| ## Shift work/night work/on call duties | X |  |  |