Research Centre: DCU Water Institute

Post title: Postdoctoral Researcher in Mechanical and Electronic Prototyping (Postdoctoral Researcher Level 1)

Post duration: 19 Months

Background and Role

The engineer will join a multidisciplinary research team working towards the development of Advanced Environmental Decision Support Systems for Coastal Areas. The project’s goal is the development of low cost optical sensing probes for the detection of pollution events in the marine environment. The engineer will work closely with the team members in the Water Institute (physicist and environmental scientist) but also with the industrial partner and will be responsible for the prototyping (design, assembly & construction and testing) of the sensor.

Research Career Framework

As part of this role the researcher will be required to participate in the DCU Research Career Framework. This framework is designed to provide significant professional development opportunities to researchers and offer the best opportunities in terms of a wider career path. DCU has a strong track record in attracting both Irish and European Union research funding under Horizon 2020 (and all previous Framework Programmes), Marie Curie Actions and Erasmus. We offer a dynamic and internationally-focused environment in which to advance your academic career.

Key Responsibilities

- To create mechanical design parts for components, assemblies and finished prototypes
- To identify and select optimal materials for the sensor housing, optical head etc.
- To create embedded software design programs, and to integrate electrical and mechanical systems.
- To design and test PCBs, on-board diagnostics of sensor components and calibration
- To build multiple units for field trials in collaboration with the industrial partner
• To develop the specification, design and deployment of marine sensing systems in collaboration with the project team.
• To work closely with industry/research partners (existing and planned) and other stakeholders.

Mandatory Training

The post holder will be required to undertake the following mandatory compliance training: Orientation, Health and Safety and Data Protection (GDPR). Other training may need to be undertaken when required.

Essential Criteria

• B.Eng. in Mechatronic Engineering, Mechanical and Electric Engineering or similar

Desirable Criteria

• Analogue and digital PCB design
• Mechanical design (Solid Works, CAD)
• Programming Languages: Embedded C, Java, Visual Basic
• Experience in working with marine systems, marine deployments or marine sensors
• Good analytical skills and computer skills
• Evidence of excellent organizational and communication skills
• Evidence of excellent time management skills
• Experience with sensor systems for water monitoring is an asset
• High levels of initiative, self-management, achievement-orientation, and motivation are encouraged

Candidates will be assessed on the following competencies:

• **Discipline knowledge and Research skills** – Demonstrates knowledge of a research discipline and the ability to conduct a specific programme of research within that discipline and in collaboration with industry partners.
• **Understanding the Research Environment** – Demonstrates an awareness of the research environment (for example funding bodies and key industry players) and the ability to contribute to grant applications
• **Communicating Research** – Demonstrates the ability to communicate their research with their peers, with industry partners, and with the wider research community (for example presenting at conferences and publishing research in relevant journals) and the potential to teach and tutor students
• **Managing and Leadership skills** - Demonstrates the potential to manage a research project including the supervision of undergraduate students and to meet industry partner expectations regarding project turn-around times.