MESTECH Research Project

Project Title: **Condition Monitoring of Marine Devices**

Project Researcher: **Oshoke Wil Ikpekha**

Funding Body: **IRCSET EPS**

Project Summary:

This project aims to develop a method of assessing the 'health' of marine based electro-mechanical devices and provide a non-invasive means of predicting failure mode. The concept is to use marine based acoustic sensors to actively monitor acoustic emissions from the device. Using the acoustic spectrum information, a fingerprint of the device over a range of conditions during normal operation can be established. Deviations from the baseline fingerprint, or 'special cause variations' can be highlighted/communicated as a fault, or can be used as an indicator that a fault is likely to occur if corrective action is not taken.

Key Outputs:

The outputs of this work would directly impact on the O&M costs of ocean based systems, specifically impacting on efficiency / yield, reliability, and maintenance costs. The ability to predict and possibly prevent catacstrophic failure of an ocean based system such as a wave enery device could make a significant impact on its overall return on investment and risk profile. A conservative estimate for the maintenance costs of marine based energy systems, based on similar land-based systems such as wind-turbines, is 26% of the overall costs. For the less established ocean energy sector this number is likely to be much higher