



## MARE WP3.1 Deployment and implementation of E-MARE



At the preliminary stage of the project, each partner university need to determine for ICT equipment necessary for the effectiveness implementation of the MARE Project in field of marine environment and ecosystem in accordance with the project work plan. Based on the analysis and discussion with the members of the project which consist from several schools, UTM decided to purchase this equipment.

### 1. DELL HPC EMC PowerEdge R740

The DELL HPC purchased under MARE Erasmus Grant to be used for research purposes for postgraduate students. It is also being used for undergraduate students for their simulation works. This DELL HPC really beneficial for the research students since they required high performance computer to analyse, optimise and verify the performance which led reduction in the cost of experiment and reducing the down time. For the time being, the OPENFOAM and FLOW3D are the software used as per figure below. The DELL HPC is stationed at Marine Technology Centre, under supervision of Prof. Dr. Adi Maimun.



Figure 1 a & b: DELL HPC EMC PowerEdge R740 and Open Foam software.

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### 2. YSI Pro DSS Multiparameter Water Quality Checker

YSI Pro DSS Multiparameter Water Quality Checker equipment was purchased under the MARE Erasmus Grant to be used for teaching purposes for postgraduate classes. It is also being used for postgraduate students' research. The subjects are MKAK 1063 Water Quality Management and Assessment and MKAK 1003 Environmental Management and Sustainability. Since classes are still conducted online students will be given demo online how to use the equipment. Postgraduate students under the MARE Erasmus program use the equipment monthly for water quality and aquatic life monitoring for accumulation of microplastics. The water quality parameters involved are temperature, dissolved oxygen, salinity, conductivity, atmospheric pressure, and water depth. The figures below show the usage of equipment for postgraduate research activities. This YSI Pro DSS Multiparameter Water Quality Checker is placed at Civil department under supervision of Dr Syamila.



Figure 3 a, b & c: Sampling using the equipment. YSI Pro DSS Multiparameter Water Quality Checker Logger display. Sampling was also conducted for phytoplankton collection.

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A



B

Figure 2 a & b: Research activities conducted at sea. YSI Pro DSS Multiparameter Water Quality Checker was also used in conjunction with aquatic life monitoring to measure dissolved oxygen and water temperature.

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