APPROVED

# Certificate in Ocean Energy
## Engineering

| | | | | | |
|---|---|---|---|---|---|
| **Programme Code** | DK_EOCEA_9 | **Mode of Delivery** | Full Time On Campus, Part Time On Campus, Modular | **No. of Semesters** | 2 |
| **Semesters Per Stage** | 2 | **NFQ Level** | 9 | **Programme Credits** | 30 |
| **Language of Instruction** | English | | | | |
| **Field of Study** | 0713 - Electricity and energy | | | | |
| **Educational Aim of Programme** | The aim of the Postgraduate Certificate is to produce graduates with an advanced level of theoretical knowledge and some level of practical knowledge in a specialist domain of renewable energy. Furthermore, the innovation skills obtained in undertaking this programme will enable their professional development in the renewable energy industry.<br><br>On completion of the programme, students will:<br><br>A.Have an advanced understanding of the knowledge base in this area and an appreciation of how this equips them to offer leadership in the area of renewable energy.<br>B.Have excellent teamwork skills with the ability to take responsibility for the work of individuals and groups.<br>C.Have the capacity to apply advanced theoretical knowledge to solve complex problems in the field of renewable energy.<br>D.Have the ability to systematically evaluate emerging renewable energy technologies and trends.<br>E.Have the ability to provide competent advice and consultancy to relevant bodies engaged in renewable energy.<br>F.Have a profound respect for intellectual integrity and for the ethics of scholarship. | | | | |
| **External Code** | **Code:** | | | | |

## Programme Learning Outcomes (PLOs)

On successful completion of this programme the learner should be able to :

| # | Description |
|---|---|
| PLO1 | A systematic understanding of knowledge, at, or informed by, the forefront of renewable energy. The learner is expected to have a detailed knowledge and understanding of the facts, concepts, principles, theories and methods associated with this specialisation. |
| PLO2 | A critical awareness of current problems and/or new insights, generally informed by the forefront of renewable energy. The learner is expected to have a detailed knowledge, experience and understanding of - the theories, paradigms, defining concepts and underlying principles of the research area. - advanced methods for acquiring, interpreting and analysing current research, with a critical awareness of the appropriate contexts for their use through the study of original papers, reports, journals and data sets. - the identification, definition and resolution of novel, complex, research problems. - relevant legal and regulatory frameworks. - aspects of the defining elements and the inter-relationships of the research area as a result of in-depth study and research. - the current limits of theoretical and applied knowledge of the energy research area. |
| PLO3 | Demonstrate a range of standard and specialised research or equivalent tools and techniques of enquiry. The learner will be able to: - proactively troubleshoot and solve original technical problems. - employ appropriate advanced data analysing, synthesising and summarising skills in a scientific research environment. - source relevant information, critically interpret and apply appropriate referenced literature from a wide range of information sources. - apply relevant numerical and statistical analysis skills. - maintain detailed records of activities - present and defend scientific research findings in a variety of forms to specialists and non-specialists. - formulate a hypothesis and design a relevant programme of investigation. - write accurately and in a manner consistent with scientific publications in the domain of renewable energy. |
| PLO4 | Select from complex and advanced skills across the renewable energy domain; develop new skills to a high level, including novel and emerging techniques. The learner will be able to: - think independently and make informed effective decisions. - select from a range of routine and specialised scientific skills to apply the most appropriate in a range of situations. - make decisions in relation to a complex, or highly regulated work setting. design, develop and test novel hypotheses. - learn new skills with ease, either independently from scientific papers, or with minimal instruction. |
| PLO5 | Act in a wide and often unpredictable variety of professional levels and ill-defined contexts. The learner will be able to: - apply advanced research skills, constructively criticise, draw conclusions and offer recommendations within a sub-field of renewable energy. - act autonomously and think independently. - formulate and communicate judgements, with incomplete or limited information. |
| PLO6 | Take significant responsibility for the work of individuals and groups; lead and initiate activity. The learner will be able to: - lead multidisciplinary teams. - develop novel technical solutions. |
| PLO7 | Learn to self-evaluate and take responsibility for continuing academic/professional development. The learner will be able to: - identify knowledge gaps and source and undertake self-learning to fill the gaps. |
| PLO8 | Scrutinise and reflect on social norms and relationships and act to change them. The learner will be able to: - identify and articulate the key considerations of a problem. - critically comment on the technical, economic, environmental and social implications of own work and work of others. - draw complex information together and extract policy implications. |

## Semester Schedules

### Stage 1 / Semester 1

| Mandatory | |
|---|---|
| **Module Code** | **Title** |
| ENVR E9Z01 | **Water Power 1** |

### Stage 1 / Semester 2

| Mandatory | |
|---|---|
| **Module Code** | **Title** |
| ENVR E9Z11 | **Power System Integration of Renewables** |
| ECON E9Z01 | **Energy Policy & Economics** |
| ENVR E9Z09 | **Ocean Energy** |