ADVANCED DIPLOMA OF ELECTRICAL AND INSTRUMENTATION (E&I)
ENGINEERING FOR OIL AND GAS FACILITIES

MODULE DETAILS	**MODULE 13: Electrical Applications to an Oil and Gas Platform and Site** 2 weeks (16 hours total time commitment) This time commitment includes the preparation reading, attendance at each webinar (1 hour plus 15-30 minutes for discussion), and the time necessary to complete the assignments and further study.
MODULE PURPOSE	This module focuses primarily on sustainable energy sources, harmonic resonance (e.g. on ships and offshore platforms) and plant fires started through lightning and electrostatic discharge. The coursework is based primarily on case studies, and delegates will consider all electrical problems holistically, combining elements of grounding/earthing, protection, hazardous areas and switchgear. They will also draw on each other's experience in recommending solutions to the individual cases.
PRE-REQUISITE MODULES/UNIT(S)	Module 6: Switchgear for Power Distribution Module 8: Power System Protection and Co-ordination Module 9: Electrical Safety, Grounding/Earthing, Bonding and Lightning Protection Module 10: Power Quality, Uninterruptible Power Supplies, Surge Protection and Noise Control Module 12: Electrical Equipment in Hazardous Areas
ASSESSMENT STRATEGY	To evaluate the achievement of the learning outcomes; written assignments, group projects and practical exercises are set.
SUMMARY OF LEARNING OUTCOMES	1. Develop solutions for industrial problems related to sustainable energy and harmonic resonance [13.1] 2. Propose measures to minimize the risk of fire to plants [13.2]

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Learning Outcome 1	**Develop solutions for industrial problems related to sustainable energy and harmonic resonance [13.1]**
Assessment Criteria	1. Propose suitable power sources for specific industrial applications, based on sustainable energy principles [13.1.1] 2. Identify the sources of, and propose solutions for, harmonic resonance in (a) industrial systems, (b) ships, and (c) offshore platforms. [13.1.2]
Learning Outcome 2	**Propose measures to minimize the risk of fire to plants [13.2]**
Assessment Criteria	1. Propose measures to minimize the risk of fire in plants and offshore rigs due to (a) lightning and (b) electrostatic discharge [13.2.1]

Delivery Mode
A combination of asynchronous and synchronous e-learning delivery comprising a judicious mix of interactive online web conferencing, simulation (virtual labs) software, remote online labs, online videos, Power Points, notes, reading and study materials (in pdf, html and word format) accessed through the Moodle Learning Management System (LMS).