



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

MODULE DETAILS

MODULE 1 : Fundamentals of Electrical Engineering

Nominal duration: 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 gives a quick overview of the key areas of electrical engineering. It reviews the fundamentals of electricity, alternating current systems, electrical generation, transmission, and distribution as well as the key equipment of electrical systems. It also examines the distribution concepts followed in the oil and gas industry.

PRE-REQUISITE MODULES/UNIT(S)

N/A

ASSESSMENT STRATEGY

To evaluate the achievement of the learning outcomes; written assignments, group projects and practical exercises are set.

SUMMARY OF LEARNING OUTCOMES

1. Examine and discuss the fundamentals of power systems and electric power generation [1.1]
2. Describe the equipment for power transmission and distribution and related topics [1.2]

Learning Outcome 1

Examine and discuss the fundamentals of power systems and electric power generation [1.1]

Assessment Criteria

1. Discuss the concepts behind electrical power generation, transmission, distribution and utilization [1.1.1]
2. Explain the fundamentals of electrical power and energy [1.1.2]
3. Explain the fundamentals of electrical networks [1.1.3]



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Learning Outcome 2 **Describe the equipment used for power transmission and distribution and related topics** **[1.2]**

- Assessment Criteria**
1. Describe the electrical equipment used in transmission, distribution and utilization [1.2.1]
 2. Explain the basics of electricity utilization, power quality and safety [1.2.2]

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).