



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

MODULE DETAILS

MODULE 5: Power Transformers

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

The installation of high voltage distribution and transmission equipment has increased significantly over the years due to the ongoing global demand for power. As a result, the need to ensure the reliability of operation of power systems is paramount. Power transformers are among the most important and most expensive components of power systems, and their failure can impose extraordinarily high costs on plants, factories and utilities of all descriptions. It is critical that all personnel operating and working with such equipment have a sound knowledge of their operational requirements and maintenance. This module covers both the theory and operation of power transformers.

PRE-REQUISITE MODULES/UNIT(S)

Module 4: Power Distribution

ASSESSMENT STRATEGY

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

SUMMARY OF LEARNING OUTCOMES

1. Describe the theory, types, construction and characteristics of power transformers [5.1]
2. Outline procedures for the installation, maintenance and testing of power transformers [5.2]

Learning Outcome 1

Describe the theory, types, construction and characteristics of power transformers [5.1]

Assessment Criteria

1. Discuss the fundamentals of power transformers [5.1.1]
2. Explain the construction of power transformers [5.1.2]
3. Distinguish between various power transformer types [5.1.3]
4. Explain the methods of transformer protection [5.1.4]



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Learning Outcome 2 **Outline procedures for the installation, maintenance and testing of power transformers** **[5.2]**

- Assessment Criteria**
1. Explain the steps involved in power transformer installation [5.2.1]
 2. Outline the procedures involved in ensuring power transformer oil quality [5.2.2]
 3. Examine and discuss the performance of electrical tests and preventive maintenance for power transformers [5.2.3]

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).