



**ADVANCED DIPLOMA OF  
MECHANICAL ENGINEERING TECHNOLOGY**

**MODULE DETAILS**

**Module 11: Pipeline Systems**

Nominal duration: 2 weeks (24 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 covers the practical aspects of pipeline design, integrity and maintenance. Applicable codes and standards are discussed, as well as the issues of mechanical and hydraulic design and construction practices. The optimum routing and layout techniques are also be assessed. The focus is mainly on a land-based environment and will teach students the use of key performance indicators to measure the performance of a pipeline system. Use will be made of case studies and practical exercises to ensure the material is covered thoroughly.

**PRE-REQUISITE  
MODULES/UNIT(S)**

NONE

**ASSESSMENT STRATEGY**

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

**SUMMARY OF LEARNING  
OUTCOMES**

1. Discuss pipeline design standards
2. Examine and discuss routing techniques and environmental considerations
3. Examine and discuss the components and materials used in pipelines
4. Discuss corrosion prevention, assessment and repair

**Learning Outcome 1**

**Discuss pipeline design standards**

**Assessment criteria**

- 1.1 Describe the International/local codes and standards applicable to pipelines
- 1.2 Outline any recent changes to regulations
- 1.3 Discuss the steps involved in pipeline design
- 1.4 Discuss the properties of different transmitted gases and liquids



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**Learning Outcome 2**

**Examine and discuss routing techniques and environmental considerations**

**Assessment criteria**

- 2.1 Describe the techniques used for pipeline routing
- 2.2 Discuss the environmental issues to be considered during planning
- 2.3 Discuss the design considerations with respect to the environment

**Learning Outcome 3**

**Examine and discuss the components and materials used in pipelines**

**Assessment criteria**

- 3.1 Examine the application of pumps and compressors in pipelines
- 3.2 Discuss optimal pipe size vs. location of pump/compressor stations
- 3.3 Discuss the use of optimal pipeline construction material

**Learning Outcome 4**

**Discuss corrosion prevention, assessment and repair**

**Assessment criteria**

- 4.1 Describe the classification of corrosion mechanisms
- 4.2 Examine and discuss the prevention of internal corrosion in pipelines
- 4.3 Examine and discuss the prevention of external corrosion in pipelines

**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, PowerPoint slides, notes, reading and study materials (in PDF, HTML and Word format) accessed through the Moodle Learning Management System (LMS).