



ADVANCED DIPLOMA OF MECHANICAL ENGINEERING TECHNOLOGY

MODULE DETAILS

Module 17: Energy Efficiency

Nominal duration: 4 weeks (48 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

Reducing the energy costs at a facility must surely be one of the most effective and achievable strategies for lowering the operating cost. This module provides the practical tools to identify and implement programs and projects to reduce energy consumption in the most effective and practical ways. Students are provided with the skills and latest knowledge on proven methods of making real savings in energy bills. There are often significant levels of energy loss and poor efficiency in facilities - some that consume power even when the facility is not operational. These factors are costing organizations money. Energy bills are generally at least 20% of the running costs of a business, so reductions in these bills are directly responsible for better profits. This module teaches the fundamental principles of energy efficiency by assessing wastage, cost of energy and looking at the benefits accrued from improving a facility's efficiency.

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. Examine and discuss energy fundamentals
2. Examine and discuss energy sources and forms
3. Examine and discuss the generation and usage of electricity
4. Examine and discuss energy efficiency

Learning Outcome 1

Examine and discuss energy fundamentals

Assessment criteria

- 1.1 Examine and discuss the basic concepts of energy efficiency
- 1.2 Discuss methods to improve efficiency when using fuel directly



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Learning Outcome 2	Examine and discuss energy sources and forms
Assessment criteria	2.1 Compare alternative energy sources 2.2 Examine and discuss the main forms and use of energy
Learning Outcome 3	Examine and discuss the generation and usage of electricity
Assessment criteria	3.1 Describe the fuels and conversion systems commonly used for electricity generation 3.2 Discuss the usage of electricity in terms of (a) users and (b) efficiencies
Learning Outcome 4	Examine and discuss energy efficiency
Assessment criteria	4.1 Describe energy efficient practices 4.2 Discuss energy efficiency in climate control practices

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).