

**1. Module details****Module name****Power Station Instrument/Meter Reading****Module duration**

It is expected that students with the appropriate entry knowledge and skills will successfully complete this module in 36 – 40 hours.

**Module code**

NUE028

**Discipline code**

07031

**2. Module purpose**

Locate, read and accurately record readings from various power station equipment instruments/meters, and interpret those readings for the efficient and effective operation of a community power station.

**3. Prerequisites**

Nil.

**4. Relationship to competency standards**

This module provides part of the underpinning knowledge and skills in the 'Evidence Guide' of specific units of competency in the National Electrotechnology Training Package and provides similar support, where mapped, to equivalent units in the National Metals and Engineering Competency Standards. For details refer to the module to unit maps, available from NUEITAB.

**5. Content****Information displayed by the instruments/meters in the power station**

Generating equipment (diesel engine): Engine lubrication system oil pressure; Engine cooling system coolant temperature (in and out); Fuel pressure  
 Switchboard: Amperes; Voltage; Kilowatt; Kilowatt hours; Frequency hertz (Hz); Engine running hours  
 Station services: Fuel tank dip; Lubricating oil tank level; Fuel flow meter

**Use of the information gathered from the instruments/ Meters**

Ordering of: Fuel; Lubricating oil; Coolant  
 Schedule regular servicing and maintenance for: Engine oil and filter changes; Fuel filters; Drive belt (condition/ adjustment); Valve adjustments (if applicable); Major and minor mechanical servicing by outside agents; Air cleaner (both dry paper and oil bath types)

**Power station log sheets and readings**

Completed log sheets  
 Forwarding information to appropriate person/location at regular intervals (weekly)

**6. Assessment strategy**

**Assessment methods**

Assessment should be progressive reflecting a holistic approach to ensure the module purpose is met. To assist in ensuring validity, reliability and fairness assessment instruments should include practical exercises, assignments and written tests consisting of a number of item types, such as multiple choice, short answer and problem solving.

**Conditions of assessment**

Learning and assessment will take place in an environment that is conducive to a learner's development.

**7. Learning outcome details**

**Learning outcome 1**

**Read and record the information on the various instruments/meters in the power station on a community.**

**Assessment criteria**

- 1.1 Read and record the information displayed on the instrument panel of the installed power generation equipment, engine oil pressure, coolant temperatures and fuel pressure (if applicable).
- 1.2 Record the readings from the switchboard instruments/meters for amperes, voltage, kilowatt, kilowatt hours, frequency Hertz (Hz), and engine running hours (elapsed).
- 1.3 Dip, measure and record bulk fuel contents, bulk engine oil contents, read and record fuel flow.
- 1.4 Observe all safety procedures including the wearing of personal protective equipment.

**Learning outcome 2**

**Interpret and utilise the logged information to develop a maintenance schedule for efficient and effective operation of a power station.**

**Assessment criteria**

- 2.1 Utilise the logged information for the ordering of fuel, coolant and oil (engine).
- 2.2 Develop a service and maintenance schedule from the logged information for regular engine oil changes, engine oil filter changes, fan belt condition and adjustment, air cleaner element service, minor tune up requirements and valve adjustments.
- 2.3 Formulate from the Engine Hours Run logged information a schedule for minor and major overhaul, work to be carried out by external contractors.
- 2.4 Observe all safety procedures including the wearing of personal protective equipment.

**Learning outcome 3**

**Organise the delivery of copies of all completed records to the appropriate person/s at designated times ie weekly.**

**Assessment criteria**

- 3.1 Reproduce copies of original log sheets.
- 3.2 Arrange the delivery of the copies to the appropriate person/s.
- 3.3 Arrange with the designated person/s on appropriate and regular intervals to deliver the logged information.
- 3.4 Observe all safety procedures including the wearing of personal protective equipment.

**8. Delivery of the module**

**Delivery strategy**

Delivery strategies must be suitable for learning both theoretical and practical aspects described in the module purpose. It is considered that the most effective method to achieve this is by integration of theory and practice where students learn by experimentation, research and reports. It is recommended that learning and assessment be facilitated in a holistic manner that may require learning outcome sequence other than that indicated in the module.

**Resource requirements**

Students will need access to an operational powerhouse to gain maximum benefit from this module. They will also need access to all service manuals for the equipment they are training on.

**Occupational health and safety requirements**

A safe and healthy environment will be provided for students and teachers as well as the particular safety procedures followed as part of the learning / teaching activity and content.