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# EPA Specification Maintenance and Operations Engineering Technician – Wind Turbine Technician



## EPA Specification Section 5.1 – The Knowledge Assessment

- Criteria
- Grading

### Contacts

**This specification has been designed to provide all the advice and guidance you need to prepare yourself and your apprentices for end-point assessment. However, if you have any further questions please contact the EUIAS Help Desk using one of the following:**

**Help Desk email: [enquiries@euias.co.uk](mailto:enquiries@euias.co.uk)**

**Help Desk telephone: 0121 745 1310 option 2**

## Introduction

The knowledge assessment consists of 30 multiple choice questions sampling the core knowledge (listed below as CK1, CK2, CK3 and CK4) of the MOET standard. Some questions in the test are specific to each specialist pathway and some questions will be common across assessments. The practice test supplied as part of this document illustrates the format and style of the assessment.

### Preparing for the Knowledge Assessment

- While on-programme, the employer/training provider should ensure the apprentice is familiar with all areas assessed by the knowledge assessment
- The employer/training provider should support the apprentice to complete a practice test and provide them with formative feedback to enable them identify areas of further learning

### Knowledge Assessment Criteria

The criteria that are covered in the Knowledge Assessment are listed below. In each assessment, questions will cover each of the areas; not every aspect of every area will be covered in every assessment. Bold font indicates that Amplification and Guidance is provided below.

CK1 **First principles** relating to the operation and maintenance of appropriate plant and equipment

CK2 Relevant industry **health and safety standards, regulations, and environmental and regulatory requirements**

CK3 **Maintenance and operational practices, processes and procedures** covering a range of plant and equipment

CK4 The relevant **engineering theories and principles** relative to their occupation

### Amplification and Guidance

#### CK1 First principles

- Purpose of the plant/equipment
- Impact of plant/equipment malfunction or failure
- Interaction with other process plant/equipment
- Normal operating conditions such as temperatures, speeds, pressures, loads, as appropriate

#### CK2 Health and safety standards, regulations, and environmental and regulatory requirements

- Control of Substances Hazardous to Health procedures
- Working at Height Regulations
- Risk assessment procedures
- Personal protection equipment
- Manual handling and lifting and rigging
- Isolation procedures
- Site safety signage
- Confined space entry
- Compliance with site safe systems of work

### **CK3 Maintenance and operational practices, processes and procedures**

- Selection and use of tools, equipment & materials
- Engineering calculations
- Testing & inspection activities
- Condition monitoring
- Fault-finding skills
- Use of technical drawings
- Root cause analysis

### **CK4 Engineering theories and principles**

- Basic wind turbine construction: tower, blade, nacelle, generator, gearbox, horizontal and vertical axis turbines
- Wind characteristics: mean speeds, distribution, turbulence, direction, shear
- Principles of electricity generation
- Betz coefficient
- Relationship between wind speed and power; capacity factor

In accordance with the MOET assessment plan, aspects of these elements are also assessed in the Technical Interview.

### **Knowledge Assessment Grading**

This component is graded as follows:

Minimum grade for:	Graded
Fail	<18
Pass	18 - 22
Merit	23 - 25
Distinction	26 - 30