



ROLE PROFILE: ELECTRICAL MAINTENANCE

Occupational Area:	Asset/Site - Electrical Maintenance
Job Role Examples:	Electrical Maintenance Technician, Electrical Technician
Role Overview:	
<p>Electrical maintenance technicians are responsible for the assembly, installation, maintenance, testing and fault diagnosis, repair and disassembly of a wide range of electrical plant and associated components. Typical equipment includes power generation and distribution systems (Single phase/three phase LV), Earthing systems, switch panels, transformers, motors, generators lighting systems, and circuit protection devices (Fuses, MCBs, Relays, RCDs, thermal overloads). Electrical maintenance technicians are expected to be able to diagnose the causes of electrical or electromechanical malfunctions or failures of operational equipment in a prompt and efficient manner. They must be able to interpret maintenance specifications, engineering drawings and wiring diagrams to achieve many of their day-to-day objectives.</p>	
Knowledge & Skills:	
<p>The electrical maintenance technician will:</p> <ul style="list-style-type: none">• Have the required competencies to install, maintain, test and diagnose for faults and disassemble a wide range of electrical plant and associated components to the required standard while adhering to health, safety and environmental regulations and safe working practices, and taking into account environmental and sustainability considerations.• Understand the relevant legislative, regulatory and local requirements or procedures and safe working practices, including their responsibilities with regards to reporting lines and procedures.• Understand the preparation and reinstatement requirements in respect of the work area, materials and equipment, and the possible consequences of incorrect actions in these areas.• Be able to read and interpret relevant engineering drawings, related specifications, quality standards and equipment manuals, and to follow work instructions and relevant plans and schedules.• Where necessary, ensure 'as built' drawings are updated and circulated as per organisational policy.• As necessary, put forward suggestions and develop modification requests to improve plant/equipment efficiency/safety of operations.• Understand which tools and equipment to use, and when, and will follow relevant training, methods and techniques and quality control and safety procedures for their use.• Understand their responsibilities for ensuring the care and security of tools and equipment used.• Understand types of defects and faults that can occur, how to identify them, and what action to take.• Be able to handle a range of digital information, technology and equipment to support work related tasks and to communicate information.	
Technical Competencies:	
<p>Electrical fault diagnosis is a key competency across all the activities below and has been incorporated into the individual test activities below.</p> <ul style="list-style-type: none">• TEM03 - Testing Portable Equipment - safely and accurately inspect and test portable electrical equipment using appropriate tools, equipment and techniques.• TEM05 - Battery Operated UPS Systems - check the condition of battery cells, take voltage readings making comparison to the manufacturers recommendations and check the functionality of the battery-supported UPS equipment; prepare the equipment and reinstate after the work has been completed safely.• TEM06 - Inspect, Test and Maintain Industrial Switchgear Equipment - safely and competently inspect, test and maintain industrial circuit protective equipment using appropriate equipment, tools and techniques.	

- ***TEM10 - Hazardous area inspection of electrical equipment** - safely carry out a visual, close and detailed inspection of electrical/instrumentation equipment in a defined hazardous area.
- **TEM14 - Periodic Inspection of a Three-phase System** - carry out the periodic inspection and testing of three-phase plant and equipment in an industrial environment, including visual inspection of associated equipment.

*(*A valid CompEx certificate covering modules 1-4 is accepted as demonstrating equivalent competence and full dispensation would be applied for the specific test).*

Behaviours:

- Establish and maintain effective working relationships, communicate effectively, and work inclusively to deliver work within given specifications.
- Demonstrate team working skills and interact with team members in a positive and professional manner.
- Work within an overall risk control strategy which has been developed by safety specialists and includes detailed criteria for identifying risks, together with clearly defined procedures for action which must be followed.
- Take personal ownership of, and responsibility for, completing tasks and procedures. Follow procedures and relevant codes of conduct with integrity and rigour and complete actions and documents accurately and honestly.
- Take responsibility for identifying and reporting instances where procedures or work instructions cannot be met or where a variation in them is required.
- Deal promptly and effectively with problems within their control and report those that have been, and those that cannot be, solved.
- Take responsibility for supervising and mentoring others where appropriate.
- Demonstrate the ability to coordinate work scopes and simultaneous operations (SIMOPS) effectively within a wider team, as required.
- Demonstrate effective handover of responsibility and equipment at the end of a task.
- Take responsibility and ownership of personal development, set targets to plan on how these will be achieved.
- Support operational requirements, achieve targets and maintain records as required, thereby minimising backlog and downtime.
- Maintain compliance with legislative requirements and company policies, procedures and standards.
- Support innovation and development for improvements.

Determining Work Scopes:

Other categories of workers may be mobilised to complete certain stand-alone activities/work scopes within the electrical maintenance discipline. Relevant technical tests for those workers are identified below.

- PAT testing – Test Reference TEM03
- Ex Inspections – Test Reference *TEM10
- Relay Protection Testing – Test Reference TEM06

Although appropriately qualified for these specific work scopes, it should be noted that without the full suite of electrical maintenance tests the person should not be deemed as demonstrating full 'currency of competence' across the electrical maintenance discipline.

SUPPORTING NOTES: ELECTRICAL MAINTENANCE

The Connected Competence standard role profile for an electrical maintenance technician sets out the knowledge, skills, technical competencies and behaviours that are expected from a fully competent electrical maintenance technician in any sector of the Engineering Construction Industry. Once competence is first achieved through training and subsequent qualification, **regular testing** ensures that **ongoing** competence is maintained, against a recognised standard.

This supporting document highlights transferable qualifications and any additional technical requirements that maybe specific to a certain sector to support standardisation of skills and workforce transferability. It does not reference any site-specific or sector specific safety training.

Sector Specific Qualifications

Prior to embarking on the formal technical test assessment cycle, an individual would be expected to have core trade qualifications as a minimum requirement:

Key
Accepted - Applicable qualification for the role with no gap analysis required
Recognised - Applicable technical content, however a gap analysis maybe required for appropriate unit completion
Dependant on Employer - May or may not be recognised

Qualification Details	Offshore Oil & Gas	Onshore Oil & Gas	Wind	Nuclear
L3 VQ, SCQF7 in Oil and Gas Engineering Maintenance (Electrical)				
L3 Apprenticeships in: Maintenance Technician; OR Maintenance & Operations Engineering Technician.				
L3 NVQ/SVQ, SCQF6/7 Apprenticeship in: Science Industry Maintenance Technician; Engineering Maintenance; Engineering Construction; Process Manufacturing; OR Process Engineering Maintenance.				
L3 NVQ/SVQ, SCQF 7, L3 Diploma in: Engineering Construction Maintenance – Electrical; Maintaining Engineering Construction Plant and Systems- Electrical; Maintaining Electrical Systems of Plant; Maintaining Plant and Equipment – Electrical; Maintaining Plant and Systems – Electrical; OR Electrical Engineering.				
L3 NQV/SVQ, SCQF6, L3 Subsidiary Diploma/Diploma/Extended Diploma in: Engineering Maintenance; Engineering Technologies; OR Advanced Manufacturing Engineering				

Additional Technical Competence requirements

Given the hazardous nature of some Engineering Construction working environments, the overall risk control strategy for the organisation will usually require electrical maintenance technicians to be familiar with, and work within, a formal Permit to Work system. Compliance with a specific company or site safety management system (SMS) will also usually be required and additional ‘site-specific’ technical competence will be developed on top of basic technical competence assurance. Specialist safety training may also be required as a prerequisite in addition to role specific training.

Oil & Gas	Wind	Nuclear	CCUS	Hydrogen
<ul style="list-style-type: none"> • Verify vendor installed plant and equipment for safety and operational integrity. • Variable Speed Drives (maybe manufacturer specific). 	<ul style="list-style-type: none"> • Refer to Wind Turbine Technician Cross Skill Programme. 	<ul style="list-style-type: none"> • Verify vendor installed plant and equipment for safety and operational integrity. • Variable Speed Drives (maybe manufacturer specific). • TEM03 and TEM05 not required. 	<ul style="list-style-type: none"> • No additional technical competencies. 	<ul style="list-style-type: none"> • No additional skills but a heightened awareness of hydrogen leakage and the risks associated is required.