MAINTAIN PRODUCTION LINE EQUIPMENT

UNIT CODE: ENG/OS/CE/CR/5/6

UNIT DESCRIPTION

This unit covers the knowledge, understanding and skills required for a Chemical Engineering Technician to maintain production line equipment in a workplace where chemical production activities are performed. It includes carrying out equipment safety procedure, inspecting production line equipment, carrying out diagnostic analysis, maintaining mechanical equipment, maintaining process control instruments, escalating equipment/instruments breakdown and keeping maintenance logs.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Carry out equipment safety procedure	1.1 Safety procedures for handling equipment are compiled according to ***safety standards*** 1.2 ***Personal protective equipment (PPE)*** is used according to safety standards 1.3 Eequipment and tools are handled according to safety standards 1.4 Parts of the production line equipment are checked and preventive actions are taken according to safety standards
2. Inspect production line equipment	2.1 Identify process ***equipment*** & ***instruments*** according to ***Standard Operating Procedures (SOP)*** 2.2 Inspect process equipment and instrument according to SOP.
3. Carry out diagnostic analysis	3.1 Diagnostic techniques and tools to locate faults are selected, used and applied according to SOP 3.2 The causes of the faults are investigated and established according to SOP 3.3 Details on the extent, location of the faults and preventive action taken and recorded according to SOP
4. Maintain process and utilities equipment.	4.1 Production line ***equipment*** are checked according to the SOP 4.2 Select tools and work methods according to SOP 4.3 Maintenance and repairs are carried out according to SOP 4.4 Final checks are carried out to make ensure that the

ELEMENT These describe the key outcomes which make up workplace function	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
	equipment is safe and effective according to safety standards 4.5 Equipment maintenance records are completed according to SOP
5. Escalate major equipment breakdown	5.1 Major problems are escalated according to SOP 5.2 Breakdowns are escalated within stipulated time according to SOP 5.3 Records of escalated breakdowns are maintained according to SOP
6. Document equipment maintenance records.	6.1 Maintenance logs are maintained according to SOP 6.2 Maintenance records are kept according to SOP

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Safety standards include but not limited to:	1.1 Maintenance SOP's 1.2 OSHA,2007 1.3 OHSAS 18001 for occupational health and safety management. 1.4 ISO 9001 for Quality Management System
2. Personal protective equipment (PPE) include but not limited to:	2.1 Helmet 2.2 Gloves 2.3 Face mask and Goggles 2.4 Protective clothing 2.5 Foot protection 2.6 Hearing protection 2.7 Respiratory protection
3 Process instruments and equipment include but not limited to:	3.1 Reactor 3.2 Conveyer belts 3.3 Date Code machine 3.4 Packaging machine 3.5 Diagnostic equipment 3.6 Testing equipment 3.7 Labelling machine

Variable	Range
	3.8 Flow meter. 3.9 Level indicator. 3.10Thermometer. 3.11Pressure gauge. 3.12Hygrometer. 3.13Safety and Miscellaneous Sensors. 3.14 Analytical Instrumentation
4 Standard Operating Procedures include but not limited to:	4.1 Operation manuals 4.2 Inspection procedure 4.3 Testing procedures 4.4 Data record format 4.5 Diagnostic analysis procedure 4.6 Organisation procedures. 4.7 Manufacturer's instructions

REQUIRED KNOWLEDGE AND UNDERSTANDING

The individual needs to demonstrate knowledge and understanding of:

1. Organizational Context (Knowledge of the Company/Organization and its processes) **The individual on the job needs to know and understand:**	
1.1	Company's Quality policy, vision and strategy
1.2	Different quality management systems (ISO-9000, ISO-14001, OHSAS-18000).
1.3	Different quality management systems (ISO-9000, ISO-14001, OHSAS-18000 etc.)
1.4	Documentation
1.5	Standard Operating Procedures
2. Technical Knowledge **The individual on the job needs to know and understand:**	
2.1	Environmental health and safety standards (EHS)
2.2	Escalating accidents incidents and problems
2.3	Equipment safety diagnosis
2.4	The range of tools, equipment and materials needed for maintenance
2.5	The manufacturer's equipment manual
2.6	Basic mechanics
2.7	Basic electricity
2.8	Instrumentation and control

FOUNDATION SKILLS

The individual needs to demonstrate the following foundation skills:

• Time management • Problem solving • Observational skills • Computer proficiency	• Communication skills • Analytical Thinking • Interpersonal skills • Decision Making

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance Criteria, required skills and knowledge and range.

1	Critical Aspects of Competency	***Assessment requires evidence that the learner:*** 1.1 Checked the safety of process equipment and took the preventive actions according to safety standards 1.2 Inspected the functionality of process equipment, measuring instruments, and carried out diagnostic analysis according to (SOP). 1.3 Escalated equipment/instruments breakdown 1.4 Maintained equipment maintenance logs 1.5 Maintained housekeeping according to SOP
2	Resource Implications	***The following resources must be provided:*** 2.1 A production line that is equipped with process equipment 2.2 Personal Protective Equipment 2.3 Tools
3	Methods of Assessment	**Competency may be assessed through:** 3.1 Observation with the use of checklists 3.2 Interviewing to test knowledge 3.3 Written tests 3.4 Portfolio Assessment 3.5 Interview 3.6 Situation Analysis 3.7 Demonstration and oral questioning
4	Context of Assessment	Competency may be assessed individually in an actual workplace or in work-simulated conditions within accredited institutions
5	Guidance information for assessment	This unit may be assessed on an integrated basis with others within this occupational sector.