Title	Explain automated process control and fault diagnosis in an automated primary products food processing operation		
Level	5	Credits	5

Purpose	This theory-based unit standard is for experienced people working in the automated processing area in a primary products food processing operation.
	People credited with this unit standard are able to explain: the components and their functions and the hierarchy and flow of information for an automated process control network; the common faults of devices used in an automated process control system; the actions to be taken in a fault-finding process for an automated process; and the purpose and components of a functional description for an automated process control system, in a primary products food processing operation.

Classification	Primary Products Food Processing > Primary Products Food Processing - Operational Skills

Available grade	Achieved

Guidance Information

1   Legislation relevant to this unit standard may include but is not limited to – Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, depending on the candidate's work sector.

2   Definitions
     HMI – human/machine interface.
     Organisational requirements – instructions to staff on policies and procedures which are documented in memo, electronic or manual format and are available in the workplace.
     PLC – programmable logic controller. The PLC forms the basis of most control systems within the primary products food processing sectors.
     SCADA – supervisory control and data acquisition, and is the name given to systems that 'sit over the top' of a PLC to provide the operator and other users access to the system. SCADA systems work in real-time and provide graphical status displays.

Outcomes and performance criteria

Outcome 1

Explain the components and their functions and the hierarchy and flow of information for an automated process control network in a primary products food processing operation.

Performance criteria

1.1 Components of an automated process control network are identified and explained in terms of their functions.

Range components include but are not limited to – HMI, PLC, local and remote input and output modules, SCADA, fieldbus systems, smart devices, local area networks.

1.2 Hierarchy and horizontal information flows are identified and explained in terms of the control network.

Outcome 2

Explain the common faults of devices used in an automated process control system in a primary products food processing operation.

Performance criteria

2.1 The common faults associated with devices used in an automated process control system are identified and explained in terms of their types.

Range types include but are not limited to – digital, analogue; evidence is required of three examples of each type of input and output device.

Outcome 3

Explain the actions to be taken in a fault-finding process for an automated process in a primary products food processing operation.

Performance criteria

3.1 The actions to be taken in each step of a fault-finding process are explained in terms of organisational requirements.

Range steps include but are not limited to – checking of fault and status information, making the plant safe, physical checks, documentation and physical description checks, liaison with other operators and service technicians, fault repair or reset, documentation of fault diagnosis and rectification.

Outcome 4

Explain the purpose and components of a functional description for an automated process control system in a primary products food processing operation.

Performance criteria

4.1   The purpose of a functional description is explained in terms of organisational requirements.

4.2   A functional description is explained in terms of its components.

Range   components include but are not limited to – selection, safety checks, fault and status checks, route checks, start sequence, step numbers, flags, stop sequence.

Replacement information	This unit standard replaced unit standard 25676.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	**Version**	**Date**	**Last Date for Assessment**
Registration	1	17 September 2015	31 December 2024
Review	2	24 March 2022	31 December 2024

Consent and Moderation Requirements (CMR) reference	0033

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.