Qualification Specification

ProQual Level 2 Award in Machine Safety

Contents

	Page
Introduction	3
Qualification profile	3
Centre requirements	4
Support for candidates	4
Assessment	5
Internal quality assurance	5
Adjustments to assessment	5
Results enquiries and appeals	6
Certification	6
Learning Outcomes and Assessment Criteria	7

Introduction

The Level 2 Award in Machine Safety introductory award aimed at those working in the oil, gas and associated industries. Topics covered include safety legal requirements, basic terminology and principles, inclusions/exclusions from machinery safety standards, safety risks, limiting exposure to hazards,

There are currently 2 pathways, each comprising a single mandatory unit:
Pathway 1: Operator
Pathway 2: Maintenance Engineer

The Regulated Qualifications Framework (RQF) is the single framework for regulated qualifications, the regulatory body for this qualification is the Office of Qualifications and Examinations Regulation (Ofqual). This qualification is accredited onto the RQF.

Entry Requirements

There are no formal entry requirements for this qualification. Centres should carry out an **initial assessment** of candidate skills and knowledge to identify any gaps and help plan the assessment.

Qualification Profile

Qualification title	**ProQual Level 2 Award in Machinery Safety**
Ofqual qualification number	610/1184/8
Level	2
Total Qualification Time	50 hours (50 GLH)
Assessment	Pass or fail Internally assessed and verified by centre staff External quality assurance by ProQual verifiers
Qualification start date	11/7/2022
Qualification end date	

Qualification Structure

Candidates must complete the Mandatory unit from one of the available pathways:

Pathway 1: **Operator**
Y/650/3381 Machinery Safety for Operators

Pathway 2: **Maintenance Engineer**
A/650/3382 Machinery Safety for Maintenance Engineers

Centre Requirements

Centres must be approved to offer this qualification. If your centre is not approved please complete and submit form **ProQual Additional Qualification Approval Application**.

Staff
Staff delivering this qualification must be appropriately qualified and occupationally competent.

Assessors/Internal Quality Assurance
For each competence-based unit centres must be able to provide at least one assessor and one internal quality assurance verifier who are suitably qualified for the specific occupational area. Assessors and internal quality assurance verifiers for competence-based units or qualifications will normally need to hold appropriate assessor or quality assurance verifier qualifications, such as:

- ProQual Level 3 Certificate in Teaching, Training and Assessing
- Level 3 Award in Assessing Competence in the Work Environment
- Level 3 Award in Assessing Vocationally Related Achievement
- Level 3 Certificate in Assessing Vocational Achievement
- Level 4 Award in the Internal Quality Assurance of Assessment Processes and Practices
- Level 4 Certificate in Leading the Internal Quality Assurance of Assessment Processes and Practices

Support for Candidates

Materials produced by centres to support candidates should:

- enable them to track their achievements as they progress through the learning outcomes and assessment criteria;
- provide information on where ProQual's policies and procedures can be viewed;
- provide a means of enabling Internal and External Quality Assurance staff to authenticate evidence

Assessment

Candidates must demonstrate the level of knowledge and competence described in the unit. Assessment is the process of measuring a candidate's knowledge and understanding against the standards set in the qualification.

Each candidate is required to produce evidence which demonstrates their achievement of all of the learning outcomes and assessment criteria for each unit.

Evidence can include:
- assignments/projects/reports
- worksheets
- portfolio of evidence
- record of oral and/or written questioning

Learning outcomes set out what a candidate is expected to know, understand or be able to do.

Assessment criteria specify the standard a candidate must meet to show the learning outcome has been achieved.

Learning outcomes and assessment criteria for this qualification can be found from page 7 onwards.

Internal Quality Assurance

An internal quality assurance verifier confirms that assessment decisions made in centres are made by competent and qualified assessors, that they are the result of sound and fair assessment practice and that they are recorded accurately and appropriately.

Adjustments to Assessment

Adjustments to standard assessment arrangements are made on the individual needs of candidates. ProQual's Reasonable Adjustments Policy and Special Consideration Policy sets out the steps to follow when implementing reasonable adjustments and special considerations and the service that ProQual provides for some of these arrangements.

Centres should contact ProQual for further information or queries about the contents of the policy.

Results Enquiries and Appeals

All enquiries relating to assessment or other decisions should be dealt with by centres, with reference to ProQual's Enquiries and Appeals Procedures.

Certification

Candidates who demonstrate achievement of the qualification will be awarded a certificate giving the full qualification title -

ProQual Level 2 Award in Machine Safety

Claiming certificates

Centres may claim certificates for candidates who have been registered with ProQual and who have successfully achieved the required number of credits for a qualification. All certificates will be issued to the centre for successful candidates.

Replacement certificates

If a replacement certificate is required a request must be made to ProQual in writing. Replacement certificates are labelled as such and are only provided when the claim has been authenticated. Refer to the Fee Schedule for details of charges for replacement certificates.

Unit
Machine Safety for Operators

Learning Outcome: The learner will:		Assessment Criterion: The Learner can:	
1.	Understand the legal requirements associated with Safety of Machinery and how to comply with them	1.1	State the difference between the following: • Act of parliament • Regulations • Approved Codes of Practice (ACoPs)
		1.2	Describe the difference in implementation of the standards between the United Kingdom and the European Committee for Standardization (CEN) members countries.
		1.3	Highlight the legal responsibilities of the designs/manufacturers towards the users of their products
		1.4	State the legal responsibilities of the user/operator of plants and machineries
		1.5	Explain the concept of machine safety as it applies to the entire life cycle of a machine.
		1.6	Explain the consequences of non-compliance with the requirements of Machine Safety standards and industry's good practices
2.	Understand basic terminology, principles and a methodology for achieving safety in the design of machinery	2.1	Explain the following using relevant examples • Hazards • Hazardous events • Hazardous situations
		2.2	Explain the concept of Safety function and Safety-related parts of control systems (SRP/CS)
		2.3	List the types of information required by machinery users/operators
		2.4	Describe the importance of hazard identification and risk reduction
3.	Understand inclusions and exclusions from Machinery Safety standards	3.1	Explain the scope of inclusion in • BS EN ISO 12100:2010 • BS EN ISO 13849-1:2015
		3.2	Explain the exclusions in • BS EN ISO 12100:2010 • BS EN ISO 13849-1:2015
4	Understand how to identify limits of Machinery, identify Hazards, Assess Risk & Reduce risks	4.1	List common mechanical hazards
		4.2	List the common safety risks in the machinery industry
		4.3	Describe risk assessment and state its importance
5.	Understand the importance of safe design and how to limit exposure to hazards	5.1	Explain the Inherently Safer Design concept and its applicability to various power and energy sources
		5.2	Explain the principle of machine safeguarding
		5.3	Describe various types and methods of machine safeguarding
		5.4	Explain the impact of machine safeguarding on emission reduction
		5.5	Explain the minimum information requirement of the user/operator for the safe of a particular machinery

6.	Understand design considerations for Safety-related parts of control systems (SRP/CS)	6.1 Describe the risk reduction objectives of the Safety function 6.2 Explain the concept of Diagnostic Coverage (DC) and its importance. 6.3 Explain the concept of Categories and the principles it uses to achieve safety.
7.	Understand the validation process for the safety functions, categories and performance levels for the safety-related parts of control systems.	7.1 Explain the importance and the constituents of • A validation plan • Validation records 7.2 Differentiate between a generic fault list and a specific fault list 7.3 Explain the process of • Validation of performance levels and categories • Validation of environmental requirements
8.	Understand the importance of markings, signs, symbols, warning pictograms and accompanying documents	8.1 Explain the importance of the location of signs and symbols 8.2 Explain importance of visual and audible warning signals 8.3 Describe the minimum requirements for warning signs with respect to machine safety standards 8.4 Explain the importance and the minimum requirements for accompanying documents with respect to the machine safety standards 8.5 Explain documentation requirements related to the parameters relevant to the reliability (MTTFD, DC, CCF and mission time)

Assessment

There must be valid, authentic and sufficient for all the assessment criteria. However, one piece of evidence may be used to meet the requirements of more than one learning outcome or assessment criterion.

Unit
Machine Safety for Maintenance Engineers

Learning Outcome: The learner will:		Assessment Criterion: The Learner can:	
1.	Understand the legal requirements associated with Safety of Machinery and how to comply with them	1.1	State the difference between the following: • Act of parliament • Regulations • Approved Codes of Practice (ACoPs)
		1.2	Describe the difference in implementation of the standards between the United Kingdom and the European Committee for Standardization (CEN) members countries.
		1.3	Highlight the legal responsibilities of the designs/manufacturers towards the users of their products
		1.4	State the legal responsibilities of the user/operator of plants and machineries
		1.5	Explain the concept of machine safety as it applies to the entire life cycle of a machine.
		1.6	Explain the consequences of non-compliance with the requirements of Machine Safety standards and industry's good practices
2.	Understand basic terminology, principles and a methodology for achieving safety in the design of machinery	2.1	Explain the following using relevant examples • Hazards • Hazardous events • Hazardous situations
		2.2	Differentiate between risk assessment, risk analysis and risk management
		2.3	Explain the concept of Safety function and Safety-related parts of control systems (SRP/CS)
		2.4	Highlight the types of information required by a machinery designer
		2.5	List the types of information required by machinery users/operators
		2.6	List the types of information required by safety representatives
		2.7	Describe the importance of hazard identification and risk reduction
3.	Understand inclusions and exclusions from Machinery Safety standards	3.1	Explain the scope of inclusion in • BS EN ISO 12100:2010 • BS EN ISO 13849-1:2015
		3.2	Explain the exclusions in • BS EN ISO 12100:2010 • BS EN ISO 13849-1:2015
4	Understand how to identify limits of Machinery, identify Hazards, Assess Risk & Reduce risks	4.1	Explain how to identify Use limits, Space limits and Time limits of machineries
		4.2	Explain various hazard identification methods
		4.3	List common mechanical hazards
		4.4	List the common safety risks in the machinery industry
		4.5	Describe risk assessment and state its importance
		4.6	Explain measures for risk reduction

	4.7	Highlight various methods of risk reduction and their suitability
5. Understand the importance of safe design and how to limit exposure to hazards	5.1	Explain the Inherently Safer Design concept and its applicability to various power and energy sources
	5.2	Explain the principle of machine safeguarding
	5.3	Explain selection criteria for machine guards
	5.4	Describe various types and methods of machine safeguarding
	5.5	Explain various complementary protective measures
	5.6	Explain various ergonomic principles and their importance for machine safety
	5.7	Explain the impact of machine safeguarding on emission reduction
	5.8	Explain the minimum information requirement of the user/operator for the safe of a particular machinery
6. Understand design considerations for Safety-related parts of control systems (SRP/CS)	6.1	Describe the risk reduction objectives of the Safety function
	6.2	Explain how to quantify and select Performance Level (PL) for safety-related parts of control systems (SRP/CS)
	6.3	Explain the average probability of dangerous failure per hour (PFHD) figures associated with Performance Level (PL)
	6.4	Explain how the selection of performance levels (PL) can contribute to risk reduction within a control system
	6.5	Explain the concept of Diagnostic Coverage (DC) and its importance.
	6.6	Explain the concept of Categories and the principles it uses to achieve safety.
	6.7	Describe the software safety requirements and safety-related application software (SRASW) required for the safety-related parts of control systems (SRP/CS)
7. Understand the validation process for the safety functions, categories and performance levels for the safety-related parts of control systems.	7.1	Explain the importance and the constituents of • Validation plans • Validation records
	7.2	Differentiate between a generic fault list and a specific fault list
	7.3	Describe various validation techniques
	7.4	Explain when to adopt Validation by analysis
	7.5	Explain when to adopt Validation by testing
	7.6	Explain the process of • Validation of performance levels and categories • Validation of environmental requirements
8. Understand the importance of markings, signs, symbols, warning pictograms and accompanying documents	8.1	Explain the importance of the location of signs and symbols
	8.2	Explain importance of visual and audible warning signals
	8.3	Describe the minimum requirements for warning signs with respect to machine safety standards
	8.4	Explain the importance and the minimum requirements for accompanying documents with respect to the machine safety standards
	8.5	Explain documentation requirements related to the parameters relevant to the reliability (MTTFD, DC, CCF and mission time)
	8.6	Explain documentation requirements for the software used in SRP/CS

Assessment

There must be valid, authentic and sufficient for all the assessment criteria. However, one piece of evidence may be used to meet the requirements of more than one learning outcome or assessment criterion.

www.proqualab.com

enquiries@proqualab.com

Tel: +44 (0)1430 423822

ProQual AB Limited, ProQual House, Unit 1, Innovation Drive, Newport HU15 2HG
Company Registration Number: 07464445