Performing Engineering Operations (PEO)

NVQ Level 1 and 2

QCF Unit Assessment Strategy

Version 2. 1st January 2011

PEO QCF Unit Assessment Strategy. Version 2 1st January 2011

1

Table of Contents

QCF NVQ UNIT ASSESSMENT STRATEGY

Introduction

[Semta], the Sector Skills Council for the Science Engineering Manufacturing Technologies Sector, has produced this QCF Unit Assessment Strategy to:

- assist Assessors, Internal Verifiers and External Verifiers
- encourage and promote consistent assessment of QCF PEO NVQ units
- promote cost effective assessment plans

This document also provides definitions for:

- the scope of activities and the characteristics of typical learners undertaking QCF PEO NVQ units at level 1 and/or 2
- the qualifications and experience required for Assessors and Verifiers
- the assessment environment and notes on replicating the working environment.
- access to units

and requirements relating to:

- carrying out assessments
- performance evidence
- assessing knowledge and understanding

The importance and value in which employers and learners place on undertaking QCF PEO NVQ units will provide a key measure of [Semta's] success with this unit assessment strategy. Another key success factor will be [Semta's] partnership with the relevant Awarding Organisations and relevant SSC Academies.

PEO QCF Unit Assessment Strategy. Version 2 1st January 2011

3

QCF NVQ UNIT ASSESSMENT STRATEGY

Learners undertaking PEO Level 1 and/or 2 QCF NVQ Units

The PEO Level 1 and Level 2 units have been designed to cover those learners who are either:

- acquiring engineering competencies in a realistic, sheltered and controlled environment such as schools, colleges, training providers, company training centres, HM Prison Services and the MOD training workshops to enable a safe progression into the workplace/employment.

- employed but require additional engineering competencies as part of an existing job role or to enable career progression.

Assessor Requirements to Demonstrate Effective Assessment Practice

Assessment must be carried out by competent Assessors that as a minimum must hold the QCF Level 3 Award in Assessing Competence in the Work Environment. Current and operational Assessors that hold units D32 and/or D33 or A1 and/or A2 as appropriate to the assessment being carried out, will not be required to achieve the QCF Level 3 Award as they are still appropriate for the assessment requirements set out in this Unit Assessment Strategy. However, they will be expected to regularly review their skills, knowledge and understanding and where applicable undertake continuing professional development to ensure that they are carrying out workplace assessment to the most up to date National Occupational Standards (NOS)

Assessor Technical Requirements

Assessors must be able to demonstrate that they have verifiable, relevant and sufficient technical competence to evaluate and judge performance and knowledge evidence requirements as set out in the relevant QCF unit learning outcomes and associated assessment criteria.

This will be demonstrated either by holding a relevant technical qualification or by proven industrial experience of the technical areas to be assessed. The assessor's competence must, at the very least, be at the same level as that required of the learner(s) in the units being assessed.

Assessors must also be:

Fully conversant with the Awarding Organisation's assessment recording documentation used for the QCF NVQ units against which the assessments and verification are to be carried out, other relevant documentation and system and procedures to support the QA process.

Verifier Requirements (internal and external)
Internal quality assurance (Internal Verification) must be carried out by competent Verifiers that as a minimum must hold the QCF Level 4 Award in the Internal Quality Assurance of Assessment Processes and Practices. Current and operational Internal Verifiers that hold internal verification units V1 or D34 will not be required to achieve the QCF Level 4 Award as they are still appropriate for the verification requirements set out in this Unit Assessment Strategy. Verifiers must be familiar with, and preferably hold, either the nationally recognised Assessor units D32 and/or D33 or A1 and/or A2 or the QCF Level 3 Award in Assessing Competence in the Work Environment

External quality assurance (External Verification) must be carried out by competent External Verifiers that as a minimum must hold the QCF Level 4 Award in the External Quality Assurance of Assessment Processes and Practices. Current and operational External Verifiers that hold external verification units V2 or D35 will not be required to achieve the QCF Level 4 Award as they are still appropriate for the verification requirements set out in this Unit Assessment Strategy. Verifiers must be familiar with, and preferably hold, either the nationally recognised Assessor

PEO QCF Unit Assessment Strategy. Version 2 1st January 2011

4

units D32 and/or D33 or A1 and/or A2 or the QCF Level 3 Award in Assessing Competence in the Work Environment

External and Internal Verifiers will be expected to regularly review their skills, knowledge and understanding and where applicable undertake continuing professional development to ensure that they are carrying out workplace Quality Assurance (verification) of Assessment Processes and Practices to the most up to date National Occupational Standards (NOS)

Verifiers, both Internal and External, will also be expected to be fully conversant with the terminology used in the QCF NVQ units against which the assessments and verification are to be carried out, the appropriate Regulatory Body's systems and procedures and the relevant Awarding Organisation's documentation, systems and procedures within which the assessment and verification is taking place.

Specific technical requirements for internal and external verifiers

Internal and external Verifiers for the PEO units must be able to demonstrate that have verifiable, sufficient and relevant industrial experience, and must have a working knowledge of the processes, techniques and procedures that are used in the engineering industry.

The tables on the following page show the recommended levels of technical competence for assessors, internal verifiers, and external verifiers.

Note: These levels of technical competence were derived by a project carried out by members of the Awarding Organisation Forum on the continuous professional development (CPD) of assessors and verifiers.

Technical Requirements for Assessors and Verifiers

Position	Prime activity requirements	Support activity requirements	Technical requirements (see notes)
Assessor	Assessment Skills	IV Systems	Technical *competence* in the areas covered by the QCF units being assessed
Internal Verifier	Verification Skills	Assessment Knowledge	Technical *understanding* of the areas covered by the QCF units being verified
External Verifier	Verification skills	Assessment Understanding	Technical *awareness* of the areas covered by the units being verified

Notes

QCF NVQ UNIT ASSESSMENT STRATEGY

1. Technical *competence* is defined here as a combination of practical skills, knowledge, and the ability to apply both of these, in familiar and new situations, within a real working environment.

2. Technical *understanding* is defined here as having a good understanding of the technical activities being assessed, together with knowledge of relevant Health & Safety implications and requirements of the assessments.

3. Technical *awareness* is defined here as a general overview of the subject area, sufficient to ensure that assessment and evidence are reliable, and that relevant Health and Safety requirements have been complied with.

4. The competence required by the assessor, internal verifier and external verifier, in the occupational area being assessed, is likely to exist at three levels as indicated by the shaded zones in the following table.

Technical Competence required by:	An ability to *discuss* the general principles of the competences being assessed	An ability to *describe* the practical aspects of the competence being assessed	An ability to *demonstrate* the practical competences being assessed
Assessor			
Internal Verifier			
External Verifier			

Assessment Environment

The PEO Level 1 and 2 units are intended to have a wide application throughout the engineering sector. It is necessary therefore to have a flexible approach to the environment in which the units are delivered and assessed.

There will be learners who have been working in an industry for some time and wish to acquire a broad range of basic competencies as part of an existing job role or to enable career progression. The PEO units will satisfy that need. Where this is the case assessment should take place within the learner's normal workplace/eenvironment.

However, there is much to be gained by acquiring the basic engineering competencies whilst working in a sheltered environment. This is due to an ongoing emphasis on safety critical work activities and the need to ensure flexibility of assessment opportunities to both maintain and enhance the provision of competent personnel within the industry. This assessment method will allow a minimum safe level of skills, knowledge and understanding to be achieved and demonstrated by the learner prior to being exposed to the hazards of the industrial environment, thus minimizing the risk of injury to themselves and other employees.

It is recognised that not all learners who wish to achieve PEO QCF NVQ units would require this form of assessment. Only those who are judged to be potentially at risk would need to provide evidence of a minimum level of skills, knowledge and understanding to enter the industrial environment.

Examples of this are:

- Where the hazardous nature of the engineering occupations mean that the learner requires close supervision whilst they provide evidence of competence involving safety critical activities.

- For reasons of age, people entering an industrial training environment are gradually introduced to the "world of work", this helps them mature and grow in confidence as well as providing evidence of their engineering competence.

- Learners with special assessment requirements benefit from the close supervision offered by this type of environment whilst providing evidence of competence.

- Adult learners new to the industry or to a specific skill area can provide evidence with out fear of making mistakes which could prove to be dangerous and/or expensive.

- Where equipment to be used or worked on by approved, licensed or competent people (such as the aircraft industry) learners can only provide the necessary evidence that they have achieved a level of skills, knowledge and understanding in-order that they may prepare themselves for future employment.

- Penal institutions where learners wish to provide evidence of a vocational achievement in-order that they may prepare themselves for future employment.

For the above reasons the assessment of a learners competence in a sheltered environment is acceptable for this qualification, where the environment replicates that expected in industry. Where applicable, the machinery, tools, materials, equipment and resources used must be representative of industry standards and there must be sufficient equipment/resources available for each learner to demonstrate their competence individually. Workpieces or work outcomes assessed must be the learners own work and should be actual work examples that combine the skills, techniques required by the QCF units so that achievement will properly reflect the learners competence as specified in the unit assessment criteria

Assessors must therefore ensure that the competency is fully transferable to the workplace. Other aspects that should be considered could include:

- environmental conditions such as lighting conditions, noise levels and the presence of hazards
- pressure of work such as time constraints and repetitive activities
- producing actual workpieces or work outcomes and the consequence of making mistakes and the effect this has on customer, supplier and departmental relationships.

Access to Assessment

There are no entry requirements required for the PEO units unless this is a legal requirement of the process or the environment. Assessment is open to any learner who has the potential to reach the assessment requirements set out in the relevant units.

Aids or appliances, which are designed to alleviate disability, may be used during assessment, providing they do not compromise the standard required.

PEO QCF Unit Assessment Strategy. Version 2 1st January 2011

7

Carrying Out Assessments

The PEO units were specifically developed to cover a wide range of activities. The evidence produced for the units will, therefore, depend on the learners choice of "bulleted items" listed in the unit assessment criteria.

Where the assessment criteria gives a choice of bulleted items (for example 'any three from five'), assessors should note that learners do not need to provide evidence of the other items to complete the unit (in this example above, two items) particularly where these additional items may relate to other activities or methods that are not part of the learners normal workplace activity or area of expertise.

Performance Evidence Requirements

Performance evidence must be the main form of evidence gathered. In order to demonstrate consistent competent performance for a unit, a minimum of three different examples of performance of the unit activity will be required. Items of performance evidence often contain features that apply to more than one unit, and can be used as evidence in any unit where they are suitable.

Performance evidence must be:

- products of the learners' work, such as items that have been produced or worked on, plans, charts, reports, standard operating procedures, documents produced as part of a work activity, records or photographs of the completed activity

together with:

- evidence of the way the learners carried out the activities, such as witness testimonies, assessor observations or authenticated learner reports of the activity undertaken.

Competent performance is more than just carrying out a series of individual set tasks. Many of the units contain statements that require the learner to provide evidence that proves they are capable of combining various features and techniques. Where this is the case, separate fragments of evidence would not provide this combination of features and techniques and, therefore, will not be acceptable as demonstrating competent performance.

If there is any doubt as to what constitutes suitable evidence the internal/external verifier should be consulted.

Example:

Unit 11: Preparing and Using Lathes for Turning Operations Level 2

Unit specific additional assessment requirements:

In order to prove their ability to combine different turning operations, at least one of the machined components produced must be of a significant nature, and must have a minimum of six of the features listed in assessment criteria 1.11.

Assessing Knowledge and Understanding

Knowledge and understanding are key components of competent performance, but it is unlikely that performance evidence alone will provide enough evidence in this area. Where the learners knowledge and understanding (and the handling of contingency situations) is not apparent from performance evidence, it must be assessed by other means and be supported by suitable evidence.

Knowledge and understanding can be demonstrated in a number of different ways. Semta expects oral questioning and practical demonstrations to be used, as these are considered the most appropriate for these units. Assessors should ask enough questions to make sure that the learner has an appropriate level of knowledge and understanding, as required by the unit. Awarding Organisations may choose other methods, which must be supported by a suitable rationale
Evidence of knowledge and understanding will **not** be required for those bulleted items in the assessment criteria that have not been selected by the learner.

The achievement of the specific knowledge and understanding requirements of the units cannot simply be inferred by the results of tests or assignments from other units, qualifications or training programmes. Where evidence is submitted from these sources, the assessor must, as with any assessment, make sure the evidence is valid, reliable, authentic, directly attributable to the learner, and meets the full knowledge and understanding requirements of the unit.

Where oral questioning is used the assessor must retain a record of the questions asked, together with the learner's answers.

Awarding Organisations may choose other methods, which must be supported by a suitable rationale.

Witness testimony

Where 'observation is used to obtain performance evidence, this must be carried out against the unit assessment criteria. Best practice would require that such observation is carried out by a qualified Assessor. If this is not practicable, then alternative sources of evidence may be used.

For example, the observation may be carried out against the assessment criteria by someone else that is in close contact with the learner. This could be a team leader, supervisor, mentor or line manager who may be regarded as a suitable witness to the learner's competency. However, the witness must be technically competent in the process or skills that they are providing testimony for, to at least the same level of expertise as that required of the learner. It will be the responsibility of the assessor to make sure that any witness testimonies accepted as evidence of the learner's competency are reliable, auditable and technically valid.

Notes:

a) It is recognised that some Awarding Organisations provide supplementary guidance and documentation to centres to support the quality of assessment and verification practice of occupational competence units

QCF NVQ UNIT ASSESSMENT STRATEGY

Quality Control of Assessment

General

There are two major points where an Awarding Organisation interacts with the Centre in relation to the External Quality Control of Assessment and these are:

- Approval - when a Centre take on new qualifications/units, the Awarding Organisation, normally through an External Verifier (EV) ensures that the Centre is suitably equipped and prepared to deliver the new units/qualification
- Monitoring - throughout the ongoing delivery of the qualification/units the Awarding Organisation, through EV monitoring and other mechanisms must maintain the quality and consistency of assessment of the units/qualification

Approval
In granting Approval, the Awarding Organisation, normally through its External Verifiers (EV) Must ensure that the prospective Centre:
- Meets the requirements of the Qualification Regulator
- Has sufficient and appropriate physical and staff resources
- Meets relevant health and safety and/or equality and access requirements
- Has a robust plan for the delivery of the qualification/units

The Awarding Organisation may visit the Centre to view evidence or may undertake this via other means.

The Awarding Organisation must have a clear rationale for the method(s) deployed

Monitoring
The Awarding Organisation, through EV monitoring and other mechanisms must ensure:
- that a strategy is developed and deployed for the ongoing Awarding Organisation monitoring of the Centre. This strategy must be based on an active risk assessment of the Centre. In particular the strategy must identify the learner's, assessors and Internal Verifier sampling strategy to be deployed and the rationale behind this
- that the Centre's internal quality assurance processes are effective in learner's assessment
- that sanctions are applied to a Centre where necessary and that corrective actions are taken by the Centre and monitored by the Awarding Organisation/EV
- that reviews of Awarding Organisation's external auditing arrangements are undertaken

Awarding Organisations are required to provide to SEMTA, on request, details of the strategies, rationales and reviews detailed above.

PEO QCF Unit Assessment Strategy. Version 2 1st January 2011

10