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**Assessment Strategy**

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| **Sector** | **Engineering** |
| **Qualification Title(s)** | **SVQs in Engineering**  |
| **Developed by** | **Enginuity** |
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**Enginuity**

**Engineering**

**Assessment Strategy**

**SVQs in Engineering**

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# Introduction

Enginuity, the Standards Setting Body for the Science Engineering Manufacturing Technologies sector, has taken into account the Scottish Qualifications Authority (SQA) Accreditation’s regulatory requirements in producing this Assessment Strategy

Enginuity has produced this guidance to:

1. assist Assessors, Internal Verifiers and External Quality Assurers (EQAs)
2. encourage and promote consistent assessment of this qualification and/or units.
3. promote cost effective assessment plans

This guidance provide~~s~~ definitions for:

* the qualifications and experience required for Assessors, Internal Verifiers and EQAs
1. the assessment environment and notes on simulation / replication
2. access to this qualification/units

This guidance alsoprovide~~s~~ suggestions for:

1. carrying out assessments
2. performance evidence requirements
3. assessing knowledge and understanding
4. the arrangements for ‘external quality control of assessment’

The importance which employers and candidates place on having this qualification will provide a key measure of Enginuity’s success with this Assessment Strategy. Another key success factor will be Enginuity’s partnership with the relevant Awarding Bodies.

Enginuity will use the following guidance to continually improve its strategies for assessment for part or whole qualifications.

**Note**

* This Assessment Strategy is only for SVQs in Engineering and does not apply to the SVQs in Performing Engineering Operations as they have their own strategy in place.
* It is recognised that alternative forms of recording assessment evidence will evolve using information and communication technologies including e-portfolios. Regardless of the form of recording used, the guiding principle must be that information about practice must comply with legal requirements and best sector practice in relation to confidentiality. This information must also be traceable for internal and external quality assurance purposes.

# Scope of the Qualifications

Evidence of competence must be assessed against the requirements of the relevant National Occupational Standards.

# The qualification structure may require candidates to complete common mandatory units, followed by a choice of pathways. Candidates may then be required to complete further mandatory units within their chosen pathway, followed by a number of optional units from a provided selection. The range of optional units allows for any variations in the occupation in different organisations and across the sector as identified through consultation with industry.

# The number of mandatory and optional units required to achieve this qualification, and the available pathways, is defined in the specific qualification structure. This outlines the minimum number of units that must be taken, but additional units can be taken to suit the requirements of particular organisations.

# Assessor Requirements

Assessment must be carried out by competent Assessors who must holdor be working towards an appropriate Assessor qualification as identified by SQA Accreditation, the qualification regulator. Assessors holding older Assessor qualifications must be able to demonstrate that they are assessing to the current standards as appropriate to the assessment being carried out.

**Specific technical requirements for Assessors**

Assessors must be able to demonstrate that they have verifiable, relevant and sufficient technical competence to evaluate and judge evidence for this qualification. 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 candidate(s) in the units being assessed.

Assessors must also know:

1. the content and meaning of the National Occupational Standards against which assessments are to be carried out
2. SQA Accreditation’s regulatory requirements
3. the relevant Awarding Body’s documentation and system of vocational qualifications within which the assessment is taking place

# Quality Assurer Requirements

**Specific technical requirements for Internal Verifiers and External Quality Assurers**

# Internal Verifiers and External Quality Assurers must be able to demonstrate that they 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 Quality Assurers.

# Internal Verifiers must hold, or be working towards, an appropriate Internal Verifier qualification as identified by SQA Accreditation, the qualification regulator. Internal Verifiers holding older qualifications must be able to demonstrate that they are verifying to the current standards.

# External Quality Assurers must hold, or be working towards, an appropriate External Verifier qualification as identified by SQA Accreditation, the qualification regulator. External Quality Assurers holding older qualifications must be able to demonstrate that they are verifying to the current standards.

# Both Internal Verifiers and External Quality Assurers, will also be expected to be fully conversant with:

# the terminology in the National Occupational Standards against which the assessments and verification are to be carried out

# SQA Accreditation’s regulatory requirements

# the relevant Awarding Body’s documentation and system of vocational qualifications within which the assessment and verification is taking place

**Technical Requirements for Assessors, Internal Verifiers and External Quality Assurers**

|  |  |  |  |
| --- | --- | --- | --- |
| **Position** | **Prime activity requirements** | **Support activity requirements** | **Technical requirements****(see notes)** |
| Assessor | Assessment Skills | IV Systems | Technical ***competence*** in the areas covered by the qualifications being assessed |
| Internal Verifier | Verification Skills | Assessment Knowledge | Technical ***understanding*** of the areas covered by the qualifications  |
| External Quality Assurer (EQA) | Verification skills | Assessment Understanding | Technical ***awareness*** of the areas covered by the qualifications  |

**Notes**

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 portfolio evidence are reliable, and that relevant Health and Safety requirements have been complied with.

4. The competence required by the Assessor, Internal Verifier and EQA 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 Quality Assurer (EQA) |  |  |  |

# Assessment Environment

# The evidence put forward must be valid, authentic, reliable, current and sufficient (VARCS). Evidence put forward for assessment must be obtained from the working environment and be clearly attributable to the candidate. In certain circumstances, simulation/replication of work activities may be acceptable.

# Expert Witness Testimony

# Where ‘observation of process’ is used to obtain the performance evidence, this must be carried out against the National Occupational Standards. 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 standards by someone else in close contact with the candidate. This could be a team leader, supervisor, mentor or line manager who may be regarded as a suitable Expert Witness to the candidate’s competency. This Expert 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 candidate. It will be the responsibility of the Assessor to make sure that any Expert Witness testimonies accepted as evidence of a candidate’s competency are compliant with VARCS.

# Expert Witnesses must be occupationally competent and fully inducted by the centre, so they are familiar with those units for which they are to provide expert witness evidence

**Simulation and Realistic Work Environment (RWE)**

# Where simulation/replication is considered necessary, Assessors must be confident that the environment simulates/replicates the workplace to such an extent that competencies gained will be fully transferable to the workplace. In this case Assessors must clearly identify those aspects of the workplace that are critical to performance and make sure that they have been replicated satisfactorily. Where simulation/replication is involved, Assessors must obtain agreement with Internal Verifiers and External Quality Assurers before assessing any candidates.

Examples of critical aspects could be circumstances where:

* opportunities to collect naturally occurring evidence are limited or absent, and the candidate lacks evidence for completion of the unit.
* key safety-critical aspects require the candidate to be supervised
1. there is a significant risk associated with the candidate working on actual workpieces and/or engaging in communication with customers, suppliers and/or other departments.

# Access to Assessment

# There are no entry qualifications or age limits required for these qualifications and /or units unless this is a legal requirement associated with the process or the environment. Assessment is open to any candidate who has the potential to reach the standards laid down for this qualification and/or units.

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

# Carrying Out Assessments

Enginuity strongly recommends that the majority of assessment evidence for the mandatory units is gathered during the performance of the optional units. Evidence should be obtained holistically, wherever practically possible, since competent performance in the optional units is often dependent on competence in the mandatory units.

# Although it is possible to achieve the qualification with the minimum number of optional units, organisations may wish their candidates to be assessed for more than this.

# The National Occupational Standards were developed to cover a range of activities. The evidence produced for these qualifications and/or units will, therefore, depend on the candidate’s choice of ‘scope/range’ items in the standard, which are intended to help the candidate to seek the appropriate information and to acquire the necessary skills, techniques and knowledge before being able to demonstrate competent performance.

# Where the scope/range section gives a choice (for example ‘any three from five’), Assessors should note that candidates do not need to cover the other (in this example, two) items, particularly where these additional items may relate to other activities or methods that are not part of the candidate’s normal workplace activity or area of expertise.

# Holistic Assessment

Holistic Assessment is the assessment of an activity which overlaps with the contents of different components of the qualification. This can be a practical and cost-effective way of assessing the candidate. Centres are encouraged to plan for and implement Holistic Assessment.

# 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 candidate’s 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, but it is suggested that the most appropriate methods for this qualification are oral questioning and practical demonstrations. Assessors should ask enough questions to be able to determine that the candidate has an appropriate level of knowledge and understanding as required by the unit.

Evidence of knowledge and understanding will **not** be required for those scope items that have not been selected by the candidate.

The achievement of the specific knowledge and understanding requirements of the standards cannot simply be inferred by the results of tests or assignments from other qualifications or training programmes. Where evidence is submitted from these sources, the Assessor must, as with any assessment, make sure the evidence is compliant with VARCS, attributable to the candidate, and meets the full knowledge and understanding requirements of the standard.

Where oral questioning is used the Assessor must retain a record of the questions asked, together with the candidate’s answers.

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

**External Quality Control of Assessment**

**General**

Awarding Bodies are responsible for the competence and suitability of those involved in external quality assurance activities and must require them to monitor centre performance in accordance with regulatory requirements including sampling all aspects of qualification delivery.

EQA staff will work to ensure that:

* the level of sampling undertaken in external quality assurance is sufficient to guarantee consistent standards between centres
* external quality assurance takes place using scrutiny of documents and observation of the assessment and verification practices in assessment centres subject to the need for confidentiality
* external quality assurance is planned carefully, proportionally and is linked to centre performance
* regular standardisation activities take place and may include several EQAs.

Enginuity will work with all stakeholders to evaluate the effectiveness of the qualification structures and this Assessment Strategy

The two major components of external quality assurance relate to the Awarding Body’s **Approval** and **Monitoring** of the Centre.

**Approval**

The Awarding Body, normally through its External Quality Assurers (EQAs) must ensure that the prospective Centre as a minimum:

* meets the requirements of SQA Accreditation’s regulatory requirements
* has sufficient and appropriate physical and staff resources
* meets relevant health and safety and equality and access requirements
* has a robust plan for the delivery of the qualification

Depending on an assessment of the condition of the Centre by the Awarding Body this may require a visit to the Centre to view evidence or may be undertaken through other means. The Awarding Body must have a clear rationale for the method(s) deployed

**Monitoring**

The Awarding Body, normally through its External Quality Assurers (EQAs) will ensure that:

* a strategy is developed and deployed for the ongoing monitoring of the Centre. The strategy must be based on an active risk assessment of the Centre and it must identify the sampling strategy (Candidate, Assessor and Internal Verifier) with a supporting rationale.
* the internal quality assurance processes are effective in candidate assessment
* sanctions are applied to a Centre where necessary and that corrective actions are taken by the Centre and monitored by the Awarding Body
* reviews of Awarding Body external auditing arrangements are undertaken

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

**Annex 1**

**Assessment Guidance**

# Performance Evidence Requirements

# Performance evidence must be the main form of evidence gathered.

# In order to demonstrate consistent, competent performance for a unit, sufficient evidence must be provided that the performance requirements of the unit have been carried out to the prescribed standards. This evidence must be in accordance with:

# The specific evidence requirements as specified in the Scope/range section

# This Assessment Strategy

# The VARCS requirements

# The most effective way of assessing competence, especially for the performance statements in relation to scope items, is through direct observation of the candidate. Assessors (and Expert Witnesses where appropriate) must make sure that the evidence provided reflects the candidate’s competence and not just the achievement of a training programme.

Evidence that has been produced from team activities (e.g., maintenance and installation) is only valid when it clearly relates to a candidate’s specific and **individual** contribution to the activity, and not to the general outcome(s).

# Items of performance evidence often contain features that apply to more than one unit and can be used as evidence in any unit where appropriate as outlined in the Holistic Assessment section (see earlier).

# Performance evidence must be a combination of:

1. products (output) of the candidate’s work, such as items that have been produced or worked on, and documents produced as part of a work activity
2. process evidence of the way the candidate carried out the activities such as Assessor observations, Expert Witness testimonies, authenticated candidate reports, records or photographs of the work/activity carried out etc.

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

# If there is any doubt as to what constitutes suitable evidence, the EQA staff should be consulted.