



**Higher National Qualifications
Internal Assessment Report 2013
Chemistry**

The purpose of this report is to provide feedback to centres on verification in Higher National Qualifications in this subject.

Higher National Units

General comments

Overall, the standard of assessing observed on visits has been good.

In all seven centres that were visited this academic year, candidates had fair access to assessment. Almost all of the centres visited had a clear and accurate understanding of the requirements of the national standards and had correct and appropriate assessment specifications. Most centres utilised either exemplar material or prior moderated assessments.

In one visit, however, the centre was using assessments for the Units DX29 33 (*Fundamental Chemistry: an Introduction*) and DH2K 34 (*Fundamental Chemistry: Theory and Practice*) that did not cover all the mandatory Evidence Requirements. Centres need to be aware that the national standards require all the Evidence Requirements of the Units to be met by the assessments. If a centre is using internally derived assessment material it is strongly recommended that they submit the assessments for prior verification.

In all centres visited there was sufficient evidence of candidate performance. In all seven visits there was good judgement of candidate performance with clear marking schemes being used. In these cases there was clear evidence of fair and constant marking.

Unit specifications, instruments of assessment and exemplification materials

In all but one centre visited, the assessors showed a high degree of familiarity with the Unit specifications and the instruments of assessment, and were familiar with the exemplification material. This ensured the reliability of assessment in these centres and resulted in excellent standards of assessment.

In all but one centre visited, centres were using valid and reliable instruments of assessment that satisfied the Unit specifications by using either exemplar material or having their internally devised material prior moderated either internally or externally. One centre, however, was using an assessment for Outcome 1 of Units DX29 33 and DH2K 34 that did not cover the mandatory Evidence Requirements required by the Unit specification. Centres are reminded that Evidence Requirements are mandatory and must be precisely followed.

The practical outcome quantification of errors for volumetric experiments was not always observed in laboratory reports. At level 7, quantification of errors should always be shown.

Evidence Requirements

There was good evidence from most visits of clear understanding of the Evidence Requirements for the Units verified. This ensured that in these centres the

assessment instruments were appropriate, fair and reliable, and that the assessment specifications were correct.

However, one of the seven visits revealed an issue where a centre failed to produce assessments that adequately covered the Evidence Requirements. This resulted in the assessments not being fit for purpose. All other centres used exemplar material or had internally devised material prior verified and thus had assessments that were valid and reliable. Similar to last year, a few centres need a better understanding of the way in which the Evidence Requirements require that errors and tolerances should be handled. To assist with this, guidelines are given in this document under 'Specific areas for improvement'.

Administration of assessments

Excellent judgement of candidate performance and robust standardisation was observed in most centres through comprehensive sampling for verification. In most centres, the Internal Verifiers carried out their work appropriately and fairly. Most centres implemented robust assessment strategies for missed and re-sit assessments.

General feedback

There was evidence of good and timely feedback being given to candidates in most centres. Where they were available for interview, candidates expressed the opinion that they were very happy with their student experience. They felt that the courses were well organised, delivered and resourced. The quality of resources (paper materials) was excellent, and access to tutors was very good. The candidates felt that the timing of assessments was appropriate and that the marking and feedback was given in a timely manner. Most centres have put in place good mechanisms to ensure all candidates have fair access to assessment, particularly for students with special examination requirements.

Areas of good practice

During this year's visits, a number of 'good practice' processes were identified and these are listed below:

- ◆ One centre included a student declaration on academic honesty on each assessment, which candidates are required to sign prior to assessment.
- ◆ One centre had included a special assessment arrangement form, with the candidate evidence, to show that candidates had fair access to assessments.

Specific areas for improvement

- ◆ It is strongly recommended that all internally derived assessments are prior verified.
- ◆ Centres should use an internal verification form which records any issues identified as part of the internal verification process. It should include the

corrective action required to address the issue and a column to allow for the corrective action to be signed off.

- ◆ Centres should also use a master assessment folder for each Unit containing: the Unit descriptor, all assessments and marking schemes that are in use, records of internal verification that formally record agreed outcomes of internal verification activities. Centres need to incorporate more practical work into their delivery to broaden the knowledge and skill of the candidates.
- ◆ Centres should include with their candidate evidence a front sheet detailing candidate name, date, location of assessment, assessment score and pass/fail result, second marker score (if applicable), Internal Verifier signature and comments (if applicable). Candidates should sign this sheet to acknowledge feedback received. For the practical write-up, centres should ensure appropriate use of decimal places, as answers were given to five decimal places when accurate readings were only made to two decimal places.
- ◆ Centres should ensure that candidates do not join the dots on line graphs but construct a best fit line/curve.
- ◆ Centres should ensure that candidates include chemical equations in the 'background' section of their laboratory reports, and the method section of the laboratory reports should be written in continuous prose rather than bullet points.
- ◆ Centres should ensure that they have practical checklists for the practical outcomes.

Handling of Errors

Centres should set limits for tolerances from laboratory experiments. The following were agreed as appropriate at the Chemistry External Verifiers' meeting:

- ◆ The Standards of Accuracy required for level 7 candidates are titrations to be concordant to 0.1 cm^3 and gravimetric analysis to $\pm 5\%$.
- ◆ Expectations of % yield for assessed practicals for level 7 candidates are $\pm 20\%$ of centre defined yield. If results are outside the error range then candidates must be able to give satisfactorily reasons, but explanations do not reflect lack of competence.

'Sources of error' for laboratory reports are sometimes lacking in depth: in many cases they are limited to a single word or very short statements without true evaluation. In addition, a number of candidates have not understood the distinction between random and systematic errors. It is suggested that centres work to develop the quality and depth of future candidates' responses on this item.

Higher National Graded Units

Units verified:

DX2J 35: Applied Chemistry Graded Unit 2

General comments

The assessors in the only centre visited had in-depth knowledge of the Unit specifications. This ensured that the assessments met the Unit specification well, and the marking scheme was as per the Unit descriptor. The assessors were highly familiar with the instruments of assessment.

Unit specifications, instruments of assessment and exemplification materials

Only one centre was visited, and the high quality of the assessing done in this centre indicates that they had an excellent and unambiguous understanding of the requirements of the national standard.

Evidence Requirements

There was excellent evidence of candidate performance in the centre visited, and there was good judgement of candidate performance by both assessors who cross-marked. The assessors had a clear understanding of the Evidence Requirements and they accurately followed the Evidence Requirements in the Unit descriptor.

Administration of assessments

In the one centre visited, administration of the assessments was excellent, with rigorous and robust quality procedures. This ensured candidates had access to fair and reliable assessment. Cross-marking of assessments ensured good standardisation of assessments and excellent judgement of candidate performance.

General feedback

In the one centre visited, there was evidence that the candidates were receiving excellent feedback from their assessors.

Areas of good practice

During this year's visit, a number of 'good practice' processes were identified and these are listed below:

- ◆ Rigorous and robust quality procedures were put in place during the administration of the assessments.
- ◆ Cross-marking of assessments ensured good standardisation of assessments and excellent judgement of candidate performance.

Specific areas for improvement

- ◆ Centres need to ensure that robust procedures are put in place to support candidates whose native language is not English so that they are not disadvantaged during the assessment process.
- ◆ Centres need to ensure that robust procedures are put in place to ensure that reports are the candidates' own work.