



**Higher National Qualifications
Internal Assessment Report 2012
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 and there has been a significant improvement in the standard that was observed last year.

In all five centres that were visited this academic year, candidates had fair access to assessment. Almost all 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 used either exemplar material or prior-moderated assessments.

In one visit, however, the centre was using a re-sit assessment for the Unit DX29 33 (Fundamental Chemistry: an Introduction) 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 moderation.

In all centres visited there was sufficient evidence of candidate performance.

In four of the five 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. However, a visit to one centre uncovered errors in the marking of the theory assessments for DX29 33 and DH2K 34. Another visit revealed a situation where judgement of candidate performance was not always appropriate. However, this had already been highlighted and dealt with by a robust internal verification process.

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 visit, centres were using valid and reliable instruments of assessment that satisfied the Unit specifications — which they had ensured by using either exemplar material or having their internally devised material prior moderated either internally or externally. One centre, however, was using a re-assessment for Outcome 1 of Unit DX29 33 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. For practical Outcomes, marking schemes in a few centres need to be developed further so that they are sufficiently detailed for marking lab reports. Errors and tolerances in lab reports must be dealt with in a way that reflects the level of the Units.

Evidence Requirements

There was good evidence from most visits of good, 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 five visits revealed an issue where a centre failed to produce assessments that adequately covered the Evidence Requirements. This resulted in the assessment being not 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 more understanding in the way that Evidence Requirements require that errors and tolerances should be handled. Guidelines to assist with this are given in this report 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. However, in one centre internal verification had revealed errors in marking by the assessor in most of the scripts that had been sampled. Even though in these scripts these errors did not affect the pass/fail outcome of the assessment, it should have prompted the Internal Verifier to cross-mark all other scripts to make sure there were no errors outside the scripts sampled that would affect the pass/fail decision. 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. At 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 had fair access to assessment, particularly for students with special examination requirements and whose first language was not English.

Areas of good practice

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

- ◆ Some centres had excellent online file systems for documentation, policies and other evidence required by the External Verifier. This made verification visits more straightforward and more efficient.

- ◆ One centre had an internal sheet to record assessments scripts that were borderline pass/fail and that needed to be cross-marked by the Internal Verifier.
- ◆ Some centres had implemented policies to ensure the cross-marking of scripts from inexperienced assessors.
- ◆ Some centres had clear policies for expectations for those students who did not have English as their first language.
- ◆ One centre had a marking scheme that was arranged in a grid to help the accurate marking of students' answers.

Specific areas for improvement

- ◆ When using exemplar material, the papers should be word-processed/desktop-published to give appropriate space to enter answers. This will also aid more reliable marking.
- ◆ When internal verification raises concerns about the accuracy of the marking then the verification sample should be expanded to give a larger sample to see how widespread the inaccuracies are.
- ◆ Centres should ensure that where Unit Outcomes require practical skills then the practical work undertaken should enable the generation of evidence for all the knowledge and skills required from the Outcome.
- ◆ Some centres need to develop more detailed marking schemes to ensure appropriate judgement of candidate performance.
- ◆ Some centres need to give more feedback to the learners. Some centre assessments seem to be marked pass or fail with no evidence of learner feedback.

Handling of errors

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

- ◆ The standards of accuracy required for level 7 candidates are that titrations be concordant to 0.1 cm³ and gravimetric analysis to +/- 5%
- ◆ Expectations of % yield for assessed practicals for level 7 candidates are +/- 20% of centre-defined yield. If results are outside the error range then the candidate must be able to give satisfactory reasons, but explanations should not reflect lack of competence.

'Sources of error' for lab reports sometimes are lacking in depth, in many cases being limited to 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 candidate responses on this item.