Internal Assessment Report: Mechanical Engineering (212)

Sector Panel or SSC: Engineering, Science and Mathematics

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

Higher National Units

Titles/levels of HN Units verified

D4FL 04 Applied Thermodynamics: Industrial Applications
DR1T 34 Statics and Strength of Materials
D4JM 04 Mechanical Engineering Principles: Thermofluids
D4GD 04 Design Drawing and Communication for Engineers
D4HB 04 Engineering Mechanics and Strength of Materials
DT9R 34 Engineering Measurements
DV9G 34 Mechanical Engineering Principles
D4HW 04 Heat Transfer and Fluid Mechanics
DR2D 34 Safety Engineering and the Environment
DR3L 34 Engineering Principles
DT9P 34 Thermofluids
DT9T 34 Dynamics
D4H7 04 Engineering Project
D3PJ 04 Applied Heat

General comments

Overall the 212 Verification Group found that the standard and level of marking within the cognate group was good.

Each centre was well prepared for each visit and made good use of assessment packs and the instruments of assessment. Those shown were of a high standard.

There was evidence of robust internal verification being undertaken with all appropriate paperwork being signed and updated in line with quality assurance systems within each college.

Verifiers noted that good feedback was given by all staff across all areas to candidates on assessments and their work in general.

Advice on good practice and areas for further development

Good practice observed

Across the 212 group it was noted that good links had been formed with local schools and employers allowing Engineering students to achieve their chosen Engineering Course through interaction at a variety of levels.

A number of areas of good practice were noted, in particular, one centre's use of the VLE for learning using OneNote software to enhance the learning process. This example has the potential to be used for a development day. Taking the use of the VLE/www further, one verifier was able to discuss with a candidate their project work via SKYPE from Saudi Arabia, allowing interaction in real-time with candidates across the globe.

Areas for further development

Areas identified for further development were:

- Centres should ensure presentation standards are consistent and are time bound, ie candidates are fully aware of timescales and deadlines.
- Centres should ensure that all paperwork presented for verification is accurate and in-line with the requirements of the SQA Unit descriptors.
- Centres could improve their notification of the most suitable period to undertake verification duties, thereby allowing verifiers an overall view of candidates' work at the most appropriate time of the year.

Although assessment decisions were in line with guidelines for each Unit, some subjects, eg Statics and Strength of Materials, and Thermodynamics, seem to have a higher failure rate than other topics in this sector. This could be due to candidates not applying themselves to their studies or candidates possibly being directed into higher level work which may be beyond them. This difference was particularly noted between full-time and part-time candidates with full-time candidates having a higher failure rate than their part-time colleagues.

Higher National Graded Units

Titles/levels of HN Graded Units verified

DV11 34 Mechanical Engineering: Graded Unit 1
DV12 35 Mechanical Engineering: Graded Unit 2

Feedback to centres

General comments

A central verification event was held for Mechanical Engineering: Graded Unit 1. Scripts from five centres were covered.

One centre visit took place for Mechanical Engineering: Graded Unit 2. This was a well planned visit with all documentation available for review. Materials for the Unit were well presented and in a clear and logical order. The instrument of assessment was of a good standard as was the candidates' work that was presented for verification. Thorough internal verification had taken place and good evidence was presented for this.

Advice on good practice and areas for further development

Good practice observed

The examination-based assessments for Mechanical Engineering: Graded Unit 1 had been prior verified, as recommended by SQA.

Candidates on the project-based Mechanical Engineering: Graded Unit 2 who undertook work that was of a practical nature and also of personal interest, appeared to be better motivated and achieved higher grades.

Areas for further development

One area was identified for further development. Centres should ensure that presentation standards are consistent and are time bound, ie candidates should be made fully aware of timescales and deadlines.

National Units

Titles/levels of National Units verified

D160 12 Dynamics
D161 12 Strength of Materials

General comments

The verifier identified the following during the visit:

- all materials presented for verification were of a high standard
- the instruments of assessment and marking schemes were deemed appropriate
- good use of NABs within the delivery of the Units was observed
- good practice within the delivery of the Dynamics and Strength of Materials Units

Advice on good practice and areas for further development

A project with integrated assessment had been devised to assess these Units which allowed the students to design and build a working model for assessment. This resulted in stimulating, motivating and rewarding work for the students.

From this review no areas of further development were required.