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Moderators' Report/ Principal Moderator Feedback

June 2011

GCSE Engineering

5EG02 Paper 01

Engineered Products

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Unit 5EG02
Engineered Products

The new specification for Unit 5EG02 'Engineered Products' requires, as did the previous specification, that the candidate produces individually an engineered product from a given product specification and engineering drawings. There are a number of differences of detail between new and old specification and one purpose of this report is to ensure that, following the first assessment of the new specification, these differences are better understood by centres and candidates are better able to present appropriate evidence to match the new assessment criteria. There are now eight assessment criteria and it was noted that some centres were using documentation still dedicated to the earlier seven-critieria version.

There is no separate Controlled Assessment Task addressed to a particular criterion (as in the new Unit 5EG01) but the issue of a candidate's 'Quality of Written Communication' (QWC) does arise at three of the eight assessment criteria and comments are made on this aspect later.

The product to be engineered is centre-chosen/devised within the parameters set by Edxecel about the use of the processes listed in the specification: material removal, shaping/manipulation, joining/assembly, heat/chemical treatment, surface finishing. There is still some doubtful application of all these parameters in some of the products chosen for production.

Given the technical requirements of the Awarding process, centres are urged to ensure that all candidates include (for each of their individual portfolios) the specification and engineering drawings from which the product is to be made. At moderation, the moderator will have had access to this specification, if only at a grouped level. At Awarding, when particular portfolios are given scrutiny, it is essential that the specification and drawings are available with each (now separated) portfolio.

The specification requires that the evidence is produced under conditions of controlled assessment with a maximum of 33 hours and centres are expected to adhere to this. Apart from this stipulation being a national-level set of assessment conditions, it does also help, through a reasoned efficiency of process, to limit the quantity of portfolio evidence produced. Nevertheless, some centres/candidates did submit portfolios with much of the submission repetitive and unnecessary. Centres are reminded to submit only that material evidence that is required.

Risk assessments may be good practice, however they are not required for assessment here. Research on the selection of materials is not required for criterion (d) – all materials decisions have been made and materials to be used

are given. The same is true of parts and components (criterion (e) used in the production of the product. The selection of appropriate processes, tools and equipment to make the product is an outcome of candidate decisions made at the production planning stage, criteria (b) and (c), so that criterion (f) retains 'selection' and then rewards the safe and skillful use of these selected processes etc.

Thus the important issues of difference to bring to candidate and centre attention as a result of the first assessment experience include the following:

- the requirement for witness testimony to 'support/guidance' given or 'independence' at six of the eight criteria
- production plans at (b) and (c) now emphasise the range of planning, not the depth of description/justification of planning
- 'selection' has been dropped at (d) and (e), the focus now being on preparation and safe use with skill
- 'selection' at (f) continues and ties in with production planning
- 'safe use' of processes with skill ties in also with (g)
- better marks at (g) (the new criterion with a reward of eight marks) require evidence of an assembled, finished, completed product and evidence of accuracy through Inspection Sheets or similar
- criterion (h) requires test data on the performance of the completed product and an evaluation of the product produced (not of candidate performance).

Centres that assessed accurately appreciated the new details of these criteria and, in order to achieve the highest marks, the need to complete the component parts safely and accurately, assembling these into a completed working product that is then tested. Evidence presented for this should have been supported by witness statements to the amount of 'guidance' required, or 'independence' seen in regard to skill and safety.

Weaker candidates at the F grade boundary might have been practically skilled but were unable to present their own written evidence of this. Centres are reminded that witness testimony is again supplementary to candidate evidence, not a substitute for it.

For Unit 5EG02 also, centres did not comment on the influence on their marking of the Quality of Written Communication (QWC) shown by candidates at the relevant criteria (b), (c) and (h). Following moderation it was pointed out to individual centres that where production plans were only poorly-presented lists, candidates could not be awarded marks much beyond the lower mark range. Where candidates presented evidence for (h) (testing and evaluation) with well written text to demonstrate the compliance of the completed product with the specified standard, then higher marks were achieved. Few candidates who got to this stage mistook the 'evaluation' for an evaluation of their own performance rather than the required one of product performance.

Candidates scored well at criterion (a) through one or more of a range of centre strategies for this criterion:

- a written response to a series of assessor questions designed to reveal candidate interpretation of the specified requirements, including the use of sketched responses
- detailed candidate notes/annotations shown on the given engineering drawings to indicate their interpretation of requirements
- supplementary and indicative witness testimony about the support and guidance required, or independence shown
- as indicated in the Expected Evidence statements for 5EG02 (website Teacher Support Book for Controlled Assessment), the outcomes of the whole unit activity can serve as holistic evidence for (a). If a product is completed with skill and accuracy, and it works to specification, this is evidence of good 'interpretation', though there is still the need for a witness statement to the amount of support required.

Centre assessment of this new unit specification at its first assessment was therefore deemed to be generally lenient due to the issues listed:

- witness testimony was stronger than actual candidate evidence
- production planning did not include the range of proposed activities [often not the electronics, nor assembly operations, nor planning for testing at (h)]. Planning for quality checks at (g) was usually included.
- lack of candidate written work, or poor written work, at (b) (c) (h) meant that marks were lenient for QWC
- candidates provided only limited direct evidence at (d) and (e) separately, focussing instead on (f) so that MR3 marks were awarded leniently, without evidence. Electronics work for (e) and (f) were sometimes presented as an add-on, with no appreciation shown of the integrated requirements of the product, making it hard to justify MR3 at (f).
- skill-level judgements require measurements for 'in/out of tolerance' to be shown for (g) (usually by some form of Inspection Sheet) and sometimes these were not present, or did not include actual measurements made. Commentary on the quality of the electronics made was often limited
- there was confusion between (g) and (h), not helped if the product specification did not have appropriate performance levels specified so that MR3 marks could not be accessed at (h).

The trend apparent in portfolios for Unit 5EG02, of presenting candidate-annotated photographs of candidates at work, seen using processes and appropriate PPE and using test equipment, and with photo-evidence of verified-ownership partial or completed products, is a welcome and valuable trend. It certainly helps to provide a necessary 'feel' for the candidate work, to go alongside the direct documentary evidence.

There were a series of numerical typo and recording errors made at centres in the handling of the numerical marks (details will have been noted in individual centre reports) but centres and candidates did generally gather their portfolios

and deliver them for moderation in good time, good order and with necessary documentation completed accurately, including the portfolios of the highest and lowest marked candidates. Centres did also respond quickly following E6 reminders sent where and when necessary. There was good use of the Candidate Record Sheet and its Authentication Declaration and the Controlled Assessment Tracking Sheet was put to good use for page numbering and annotation, which is always helpful at the moderation stage.

Centres use a range of formats for candidate portfolios. It should be noted that certain portfolio binding methods are not recommended eg sub-folders are inconvenient. Single-sided work is preferred and in many respects the single top-corner ‘treasury tag’ method of fixing remains the ideal.

Centres are thanked for their co-operation in this first assessment of the new specification and candidates praised for their best efforts and success. Centres and candidates for 2012 are strongly urged to look closely at the lessons of the first assessment, as reported here.

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