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Summer 2012

GCE Engineering

Unit 6935_01

The Engineering Environment

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Unit 6935_01

The Engineering Environment

The majority of centres assessed this unit with much accuracy. Many centres now appear to be taking notice of the feedback from previous moderation series.

It is essential that candidates each work with a real engineer and a product which they are involved with. This is not a qualification, or subject, that can be learned by searching the internet for information without meeting engineers and finding out exactly what they do, the environment in which they work and all the relevant factors which impact on them – hence the unit title - 'the engineering environment'.

A few candidates included variable amounts of printouts from the internet or leaflets and documents obtained from industry, in the form of appendices or within their work. All that is required is a brief description and explanation about the documents and how they are used, etc, without increasing the bulk unnecessarily. Guidance on how to address the assessment grids seems to make a noticeable difference to the candidates' portfolios.

A limited number of centres made use of work experience to obtain evidence for this unit, and generally this worked well. Some centres appeared to have difficulty obtaining more than one link with one employer and even one engineer, but most modern engineers have such a varied role that ten candidates could work with one person and all write about different aspects of his or her role, removing the 'sameness' of the portfolios which usually results under such instances.

A few centres were advised to seek PD&T in order to present the qualification accordingly to prevent their candidates being excluded from opportunities. There are a few centres which seem to operate within consortia and the potential administrative issues can lead to delays in results if the correct paperwork and procedures are not duly followed.

The candidates' work was across the usual range, mostly ranging from adequate to good. An increasing number of portfolios were excellent, but several were not.

a) Ideally, candidates should start by identifying standards – real ones. Typically, 'standards' have been related to the products, although some candidates provided very long lists. Few appeared to know how to use their collection of material to help them progress up the mark bands. Those who venture no further than the internet, or class notes, tend to make obvious comments, such as 'an engineer would probably use.....' instead of seeing what a real engineer does and reporting on what they witnessed or found out. The majority of centres are now focusing on the actual requirements of the specifications and some high scores are being awarded, accurately, for making appropriate BS and ISO references, indicating a deeper understanding of the requirements of this unit.

b) The use of documentation was described by most candidates, but many provided little detail of how it related to the product or why they were used. A few candidates collected large numbers of documents and put them in large appendices, making little or no reference to the material – centres are reminded that only the work completed by the candidate can attract marks. Centres are advised to ensure that candidates avoid appendices or inclusions, and write their own descriptions and explanations, as necessary. A reducing number of centres included examples of data manuals, company policies, etc. The majority of candidates performed very well with this criterion and scored some high marks by listing a few documents and describing them, their purpose and use by the engineer – in 2 to 4 pages, without appendices.

c) Energy efficiency plays a larger part of everyday life, which may be why most candidates performed well on this criterion. Some, however, achieved low marks because their report lacked any real depth or details of how they applied to a real engineer and product. Many candidates covered this section quite well, including details of efficiency assessment, reducing the use of power, installing relevant insulation, other green issues, etc, and several scored, or came close to, top marks. It is essential that each candidate asks their engineer about this, as with all the other sections, or the portfolios can only contain general comments at best, which limits progression through the mark bands.

d) Environmental impact was generally covered thoroughly, probably as much from general knowledge than specialist investigation, but the details do need to focus on the engineer and the product. Waste materials, emissions, landfill and noise for surrounding areas were included and discussed by many candidates, but much was general and unrelated, which attracts no marks beyond mark band 1. Where ‘c’ and ‘d’ had been mixed together, although acceptable, it is difficult to allocate marks. If this mixing does occur, it is essential for the assessor to annotate the work in order to help indicate where each part is addressed. This will help with the moderation process.

e) The technologies section is similar to section ‘b’ of 6932, but requires a deeper understanding at A2 than at AS. The usual CAD/CAM is always included, but many times this was not made relevant, although some candidates included detailed descriptions, along with justifications of the significance of the systems they had seen in use by their engineer. Scores were generally very high for this section, but far too many candidates still seem to interpret ‘technology’ as just ‘machinery’ or ‘software’. These are part the technologies, such as CNC, CAD/CAM, etc, used by engineers, but the use of mobile phones, internet, laptops, PDAs, cameras, satellite navigation, SCADA, and many other applications of new technologies are not being included by almost half of the candidates who submit work.

f) Evaluations were quite a mix, with some being quite thorough, but the majority were a little limited. Some amounted to little more than

‘company appraisals’ saying how good the product was, etc, without evaluating it. Modifications, following on from the evaluations were also generally weak and unlikely to work if the evaluation had been ineffective. Candidates usually tend to include a good idea or two, but it is difficult to determine whether they were really achievable due to inadequate details being provided. Some basic ideas are generally suggested by others, and ones that would probably cost far too much money, without providing any depth of explanation. Some candidates were leniently awarded marks by centre assessors for this section.

As with unit 6932, a long term developmental relationship with an engineer or a company does tend to help the performance of candidates across all learning outcomes, much more than a single visit and walk round the place of employment. The centres who do this effectively might find it rewarding to offer staff development under the banner of ‘sharing of good practice’ for other centres to attend and see how they manage.

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