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Moderators' Report/ Principal Moderator Feedback

Summer 2013

GCE Engineering

Unit 6935_01

The Engineering Environment

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Unit 6935
The Engineering Environment

The standard of work for this unit was generally better than the linked 6932 unit. In addition, the assessment by centres was also more accurate.

Most of the students used real engineers as the focus of their investigations. With this comes the benefit of the information required in order to address the sections. Centres should remember that this unit requires the students to research an engineer in a particular environment and find out exactly what they do. This amount of information can only be obtained by visiting the engineer and discussing the role. Some centres used work experience for this purpose. For some, it was clear that a single visit had been used, which would provide some information, but not to the depth of an on-going study of the role of the engineer.

a) Students identified a range of standards relating to the engineer. Some of these were lists, although some students clearly described the standard and explained how it impacted the product. Some student work was well produced and set out against the mark bands, showing that centres were focusing on the specification and in particular the marking grid when delivering this unit.

b) This section should focus on the documentation used by the engineer. The students should look at what the engineer actually does and discuss what documents are used. Some student included general document such as risk assessment records that would be relevant, but probably missed out on a range of other documents that would be used. Some students concentrated on CAD drawings. Examples of the documents are always useful. Large appendices, without any explanation do not serve a purpose. In the better samples, students provided a snap shot of the documents and described how they are used. Many students did not utilise the opportunity to provide simple annotations to this section that would have helped explain the purpose and relevance of the documents. There were also a small number of students that did not provide any evidence for this section. This may reflect on the chosen engineer and how the research was performed, again regular contact is essential in order to get the information from the engineer.

c) Overall, students coped well for this section although at times, the evidence for energy efficiency tended to slip into environmental (about carbon footprint) rather than possible cost-savings, and often only focused on factory heat and light issues, not on machine use or the impact of energy issues on product design. There were some common content for this task, with some basic statements such as turning off the lights or using low energy bulbs. Some of the systems relating to the engineer could have provided more detail for this section by discussing energy issues with the engineer such as how much energy is used, what is considered wasted and how the engineer can adapt to reduce this. This will provide access to the

higher mark bands, whereas stating that the factory uses solar power or low energy light bulbs, without identifying the reasons why, will not.

d) Most students produced some good work for this section. There were some clear environmental issues identified and these were often clearly related to the engineer. Some students focused on recycling and landfill, with use of general statements that were not supported by clear evidence. Most industry would recycle as a matter of policy, so the students should look to more related effects. Some good examples such as river pollution, air pollution and toxic waste disposal were identified and described.

e) The technologies section was generally well answered. A range of technologies were usually described, although some were not clearly linked to the engineer or explained. Often students described CAD, which would only be used for the design stage. Some good opportunities for advanced manufacturing were overlooked. Robotic systems were sometimes identified, but lacked detail. Some students clearly justified the technologies. The usual range of communication technologies were identified, with some clear explanations of why they are being used. Scores were generally very high for this section, and taking QWC into consideration, this was probably the best answered part of the samples.

f) Evaluations as in previous series varied. Some were quite thorough, but the majority were a little limited and simple. Often students tended to comment on what the factory or engineer did without evaluating it. Again, the selection of engineer plays a vital part in this section. If the chosen engineer cannot be accessed in order to allow a thorough evaluation to take part, then the evidence will be limited. Some of the modifications suggested were often basic and at times stated without really identifying whether the engineer could benefit from this. Common suggestions without reasoning included installing solar panels and wind turbines on the site. The better samples included diagrams of suggested modifications with detailed explanations to support these.

As with unit 6932, the benefit of a real engineer that can be accessed throughout the project is vital to the success of the student. This will always produce a higher standard of work than a single visit, or using the internet as the main method of research.

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