

Support Paper for Teachers of GCSE Engineering/Manufacturing Use of Pre-release for the External Examination Unit 5318

The examination for Unit 3 is offered as six different sector pathways. Centres are free to select which sector paper they wish to enter their candidates for. The deadline for entries to be received by Edexcel is 21st March 2006. The pre-release material is posted on the website by the end of September 2005 for the examination in June 2006. Where centres have estimated entries for the Engineering or Manufacturing qualification, a complete copy of the pre-release material will be sent to include a copy for each candidate. This pre-release will be in the form of a booklet and will cover all six sectors. Teachers at new centres should ensure that their Examinations Officer has informed the ECC (Entries Department) at Edexcel of their intention to enter candidates.

The pre-release consists of guidance for the candidates and notes to the centre. Staff at the centre should therefore open this material as soon as it arrives in the centre and read the information for all six sectors before deciding which sector is most suitable for them to support the needs of their candidates.

Generally speaking, Engineering is split into three sectors, Engineering Fabrication, Mechanical/Automotive, and Electrical and Electronic/Computer/Process Control/Telecommunications.

Manufacturing is split into three sectors, Food and Drink/Biological and Chemical, Printing and Publishing/Paper and Board, and Textiles and Clothing.

Regardless of the route the centre is planning for the other two units in the qualification, the sector for this unit can be chosen to suit the best support a centre can offer rather than being defined by any preconceived ideas.

The product selected by Edexcel for each of the sectors is a product that is in general use, easy to recognise and easy to obtain. Most of these products would be of a reasonable price to purchase, such as the Cordless Electric Drill, or are already available or owned by centres or candidates, such as the Mountain Bike.

Whilst the internet is a valuable source of information researching for this product, centres should not rely totally on this and may need to be diligent in their own research before deciding which sector is best for their candidates. For some sector products there may be a wealth of materials on the internet, such as food industry information. However, searching for manufacturers of traditional engineering type products may prove more difficult. Often adding the word “manufacturer” when carrying out searches using ‘advanced search tools’ on search engines supplies better results than not entering or using this word alongside the product name.

After defining the sector specific paper, centres need to develop a support strategy for their students. They need to consider the local support that can be gained from either industry, colleges or even universities, together with the information known to be available from the teacher’s initial search and investigation to decide which sector paper to use.

In an area where manufacturer support for the exact product may be difficult to come by, such as the Trolley Jack in the 2005 pre-release, the centre needs to source local engineering support that uses similar processes and techniques to that found in almost any engineering manufacture. A typical way to support the candidates, in this case, would be to visit the local company before the planned visit, establish what the company can show/offer, and then match or simulate this to the manufacturing process in, eg, the Trolley Jack. Different groups of candidates could be asked to get information on a particular aspect on application of technology from the company visit and briefed to give feedback to the rest of the group on return back to the centre. The teacher’s role would be to draw out the similarities between the technology seen and that of the Trolley Jack. Back at the centre the product, in this case, the Trolley Jack, should be made available and dismantled. Again the teacher should be able to relate

what is required for the manufacture and application of technology from that seen on any visits to local companies.

The delivery of the vocational curriculum requires that centres support candidates in the context of their course by applying work-related learning techniques to their area of study. Engineering and Manufacturing has the support of SEMTA and local SETPoints, as well as all other local support mechanisms such as the Education Business Links Organisations (EBLO) and Work Related Learning Officers, either in schools or LEA. Food manufacturing, for example, has the support of appropriate trade associations and professional bodies such as, for the mass-produced sliced and wrapped loaves of bread in the 2004 pre-release, the Federation of Bakers, and similar baking industry associations may be useful sources. Often Vocational Learning Support Networks 14–16 are available and supported by the Learning & Skills Development Agency (LSDA).

Once the centre has facilitated the research required by the pre-release material and instructions, the teachers should encourage the candidates to consider the usefulness of any materials gained. Often materials will be found on websites; centres need to ensure that the candidates print/copy only pages that are relevant to that required and defined by the pre-release. They should not print masses of web pages. If studied closely the pre-release highlights the areas of knowledge required for the examination and can become the focus for collecting information. Just like an internally assessed unit, the candidates should be encouraged to produce a portfolio of their research. This can then be taken into the examination and used by the candidates when answering the questions in the paper. The research notes and sketches therefore need to be well organised, or they may be more of a hindrance than help. After studying the application of technology associated with the manufacture of the Trolley Jack candidates in 2005 were asked, for instance, to answer questions about coatings used. Therefore this was listed in the pre-release instructions as an important aspect to research for Section B of that paper.

The experience of reviewing responses in previous examinations indicates that centres may be allowing candidates to take into the examination more than their own research notes and sketches, such as practice or previous examination papers, or materials from the Candidate Kit supplied by Edexcel as support materials. This can damage candidate opportunities when they give a very detailed answer, obviously taken from the practice papers or Candidate Kit, but fail to put their answer into the context of the question being asked. Centres should think about their responsibility in this matter, as candidates may be disadvantaged and not be awarded marks to match their potential. In short, staff in centres should prepare themselves to prepare the candidates to achieve to the best of their ability without employing strategies that will disadvantage them.