

Moderators' Report/  
Principal Moderator Feedback

Summer 2012

GCSE Manufacturing

5MN02 Paper 01

Manufactured Products

## **Edexcel and BTEC Qualifications**

Edexcel and BTEC qualifications come from Pearson, the world's leading learning company. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at [www.edexcel.com](http://www.edexcel.com) or [www.btec.co.uk](http://www.btec.co.uk) for our BTEC qualifications.

Alternatively, you can get in touch with us using the details on our contact us page at [www.edexcel.com/contactus](http://www.edexcel.com/contactus).

If you have any subject specific questions about this specification that require the help of a subject specialist, you can speak directly to the subject team at Pearson. Their contact details can be found on this link: [www.edexcel.com/teachingservices](http://www.edexcel.com/teachingservices).

You can also use our online Ask the Expert service at [www.edexcel.com/ask](http://www.edexcel.com/ask). You will need an Edexcel username and password to access this service.

### **Pearson: helping people progress, everywhere**

Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your candidates at: [www.pearson.com/uk](http://www.pearson.com/uk)

Summer 2012

Publications Code UG032601

All the material in this publication is copyright

© Pearson Education Ltd 2012

## **Unit 5MN02\_01**

### **Manufactured Products**

#### **General Comments**

The performance in the second series of this 2009 specification was quite pleasing, in that many centres have now started providing the correct mix of evidence for each assessment criterion. The majority of criteria for unit require a statement from an observer/assessor describing the amount of support and guidance provided/needed or the level of involvement for each individual candidate, and provide suitable supporting evidence for a remote moderator to be able to agree the assessor score.

The best portfolios contained a mixture of photographs, witness statements and candidate reports for every stage of the unit.

The maximum score for unit 5MN02 is 50, and this unit also carries 30% of the overall assessment weighting for the double award GCSE Manufacturing. Only one criterion carries marks for QWC in this unit.

#### **Administration**

Most centres submitted the required portfolios before the deadline.

A number of EDI (cohort score printouts) were received unsigned and undated. A small number of Candidate Assessment Record Sheets were completed incorrectly. It is strongly recommended that all portfolios are checked for accuracy before being submitted for moderation, particularly the candidate name, number and centre marks for each assessment criterion.

Portfolios were received in a variety of shapes and sizes, but the preferred method for submitting any written work is to provide word processed work on A4 paper, in portrait mode, and hold each candidate's portfolio together using a single treasury tag through the top left hand corner only. Any other form of presentation or packaging impedes the processes of moderation and awarding.

Where some drawings, or a few sketches, have to be done necessarily on A3 paper or CAD printouts, these can be folded in half and inserted in the correct place within the portfolios.

Several centres make use of writing frames, but paper based ones can have serious limitations. The high achievers always have more to write than will fit into each box, causing their QWC marks to suffer, whereas the weaker candidates write using large letters to fill the boxes, even if they are saying nothing of much relevance. A set of subheadings and a word processor proved to be more beneficial, where used.

#### **Assessment**

Where witness testimonies were used, the most effective ones tended to say exactly what was observed. This allows effective determination of the final

marks, making the moderation process quite straightforward. Many of the criteria in this unit require assessor judgements, with supporting evidence, about the level of independence or support which was witnessed – see comments below.

The most effective centres provided a summary of assessment considerations with each portfolio, although these would be better inserted in each criterion rather than at the front as a summary.

Most centres did not annotate the portfolios during assessment, when this should be considered essential to inform a remote moderator why marks were awarded. Several portfolios lacked page numbers which is unhelpful to the moderation process as it usually means that a moderator has to re-assess the work.

Many centres made good use of photography, which is to be encouraged together with more use of ICT. Word processing of portfolios, with import of images, provides the most effective results.

Some candidates had produced work of extremely high quality in the samples moderated, which is excellent news for this qualification. In some cases, the production plans and product specifications were clear and provided ample scope for candidates to respond to. Where candidates had been less successful, and where they had been assessed leniently, it was typically as a result of having been provided with materials at the start which were too brief, with production plans being insufficiently detailed for them to prepare a workable schedule for manufacture. A significant number of candidates appeared to have re-modelled the product rather than produce a manufacturing schedule.

Some centres asked their candidates to design a product, when there is no design in unit 5MN02. In such instances, a portfolio of, say 30 pages, contained 20 pages of good design work, which was not required and could not be rewarded, followed by 10 pages of hurriedly done planning for manufacture, preparing tools and materials and manufacturing of products, which allowed them to achieve some marks – much less than the assessors and candidates probably believed they deserved.

It is helpful to a remote moderator when centres include an overview of what they did at the centre, where this is not clear in the portfolios, along with a copy of the design specification and production plan which was given to candidates.

Page numbers and witness testimonies are essential in order to moderate this unit.

**Criterion (a)** - working as part of an effective team.

Witness statements are essential for this assessment criterion, on which the assessor must record what each individual did within the team – whether s/he played a leading role, and how, or whether s/he helped to build an effective team, and how, or whether they just contributed to an effective team, and how. Several centres appear to have seen a few pages of 'minutes of our meetings' to speak for themselves, but they rarely do if no commentary is provided. A remote moderator can only work from the evidence provided, and if this is minimal, so is the final score. Some included photographs, candidate logs, with teacher comments added, etc, all of which proved very helpful and encouraging.

Most candidates included an evaluation of the performance of all members of the team, when only their individual performance is needed. Good ones included individual targets and the role they played. The better centres had teams divided with each team member manufacturing a particular component for a given product then coming together to assemble it at the end. Witness testimonies were sadly lacking in many cases, making it hard to justify the marks awarded by the centre. The majority of portfolios contained plenty of unnecessary teaching notes and research material about team theories and analysis, as well as giving unnecessary roles to candidates such as 'general manager' instead of 'case maker' or 'financial manager' instead of 'sponge mix measurer'. Centres are encouraged to make roles meaningful to the project.

**Criterion (b)** - produce a schedule for manufacture

Gantt charts and flow charts were the favourite tool, here, and some were very effectively produced, but a flow chart lacks the sections which can be completed for the expected details of a manufacturing schedule. Many though, only used the Gantt Charts to indicate the timings of each part of the project, with no real detail about what needed doing at what stage, etc, with the best schedules being usable by a third party, without reference to any of the team or specifications. The best approaches were witnessed in portfolios where the production plan and product specification which they had been given were annotated to identify processes, materials, skills needed, hazards, etc – a real working document, which was then summarised in an effective schedule for manufacture.

**Criterion (c)** - prepare and use materials

Again, witness statements are essential, to record the level of guidance provided as each candidate prepared relevant materials and components and the skill level with which they used tools, safely. Many were asked to complete risk assessments, and some included 20 to 30 pages of school risk assessments, attracting almost no marks because it is not real evidence of working safely. Others used logbooks and/or checklists effectively, using digital cameras to help record the evidence. COSHH assessments were made use of, with variable effectiveness.

**Criterion (d)** - prepare and use tools, equipment and machinery

As with criterion 'c' – witness statements, photographs, logbooks, etc, were all used effectively by some candidates, but many centres submitted portfolios which contained little evidence of how much guidance was provided, leading a moderator to recommend scores awarded to match the evidence presented. Some candidates included several pages of downloads from tools suppliers, with prices, comparisons of the cost of sets of tools, etc – all very interesting, but gaining no marks because it isn't relevant information for this assessment criterion.

Risk assessments can be mentioned, here, but more beneficial contents included evidence of safe use of equipment and tools, photographs and witness statements. Some photographs of the use of equipment without wearing proper PPE were also seen, which tends not to gain many marks. At least one photograph of a person working safely contained another person in the background, using a drill with no eye protection in use.

### **Criterion (e)** - manufacture products to meet requirements

Where the requirements were unknown or not clearly presented to the candidates, where the teacher/client had not provided product specifications and detailed production plans, performance for this criterion could not address the assessment grid. Witness statements about the level of performance are essential, here, as well as photographic evidence and there were several good examples seen at moderation. The use of ICT to import and type around the images helps to provide some excellent evidence. Some candidates did this, and their teachers/assessors annotated it and confirmed the work as being a true reflection of occurrences.

### **Criterion (f)** - monitor production

Many centres had interpreted this to mean quality control, which is section 'g' 'use quality control techniques', but 'f' is about monitoring the rate of production and timing of each element/activity – eg did it take longer than planned, or was less time needed etc. There is no penalty for finding something wrong within the original planning, but there are marks to be gained for detecting it and suggesting and making improvements 'in order to maintain production'.

The better portfolios contained progress monitoring and/or logging charts which worked well, enabling candidates to collect progress data throughout the manufacturing processes.

### **Criterion (g)** - use quality control techniques

Some very thorough work was seen in some portfolios, across the range of sectors and a range of products, including: inspecting the product or components manufactured at each stage of production, checking that ingredients were weighed accurately enough, needle tension was satisfactory, drills were sharp and cuts were neat and straight, dimensions were being worked to, within allowed tolerances, etc – everything, in fact, to make sure the products are of an acceptable standard. A small number of centres went on to use very basic statistical process control charts (SPC) which worked well, although this is beyond what would be expected of all centres.

### **Criterion (h)** - modify production plan and schedule for manufacture

Without the initial material being provided by the teacher/client, a product specification and a detailed production plan, the schedule of manufacture becomes an unknown quantity, and section 'h' requires the original plan as much as section 'b' did. Without a good production plan having been provided, a good schedule cannot be created, so suggesting improvements to it, here, become almost meaningless.

Some candidates provided very detailed description of their collected quality data, explaining what it told them, and deciding how to improve if they were to do it again, modifying the schedule appropriately. Some actually went on to test their ideas and did it again, which is not necessary, but helped create even better evidence that their corrections/improvements were valid and effective.

From the portfolios which were moderated, the indication was that most candidates had modified their product and suggested changes to it or its design,

instead of changing and re-drafting their schedule in the light of manufacturing activities and the quality data collected during manufacturing.

## **Grade Boundaries**

Grade boundaries for this, and all other papers, can be found on the website on this link:

<http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx>

Further copies of this publication are available from  
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467

Fax 01623 450481

Email [publication.orders@edexcel.com](mailto:publication.orders@edexcel.com)

Order Code UG032601 Summer 2012

For more information on Edexcel qualifications, please visit  
[www.edexcel.com/quals](http://www.edexcel.com/quals)

Pearson Education Limited. Registered company number 872828  
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE

Ofqual  




Llywodraeth Cynulliad Cymru  
Welsh Assembly Government

