Version 1.0: 14/11

ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Secondary Education

Design and Technology: Systems and Control Technology 45652

Unit 2: Design and Making Practice

Report on the Examination

2011 examination – June series

Further copies of this Report are available to download from the AQA Website: www.aqa.org.uk

Set and published by the Assessment and Qualifications Alliance.

The Assessment and Qualifications Alliance (AQA) is a company limited by guarantee registered in England and Wales (company number 3644723) and a registered charity (registered charity number 1073334). Registered address: AQA, Devas Street, Manchester M15 6EX

General

This was the first year of the controlled assessment unit for Design and Technology Systems and Control Technology and it was pleasing to see the variety of ways in which candidates responded to the tasks. All twelve design tasks were attempted and candidates produced a wide range of largely successful outcomes. There were very few requests to contextualise the tasks, and some of these were granted where the context did not affect the nature of the system required.

Some centres offered a limited number of tasks to candidates, but it was pleasing to see that the majority of centres offered a wider choice of tasks allowing a much greater range of outcomes than were seen with the previous specification. Where only one task was undertaken by all the candidates from a centre, there were generally still opportunities for creativity and individuality.

The vast majority of candidates completed functioning products or systems for criterion 3 which combined technologies; it was extremely pleasing to see that teaching staff had managed the time and resources available to candidates very successfully. Design work was submitted in either paper-based folders or electronically as PowerPoint or P.D.F. files. All candidates were able to respond to all the tasks undertaken at a level appropriate to their ability.

Criterion 1: Investigating the design context.

The majority of candidates investigated the design context appropriately; candidates achieving the higher marks showed discrimination when selecting material to include whereas, in the lower mark ranges, some candidates presented material which was purely factual which they did not link to the relevance of the products or systems they were designing.

When analysing relevant existing products or systems, the best candidates analysed the systems in terms of Input, Process, and Output. Where the target market was profiled well, it often helped the candidate to focus the designing and evaluation, including seeking client opinion as the design progressed. Initial specifications that reflected the analysis and research undertaken put candidates in the top mark band.

All candidates need to keep their research brief and focussed but use it to directly influence their design ideas. This section only attracts 8 marks out of 90 but a number of candidates spent a disproportionate amount of time on this aspect of the task.

Criterion 2: Development of design proposals (including modelling)

Most candidates developed initial ideas for their outcomes through pencil sketching although a number successfully used CAD. Where candidates designed their own electronic systems, modelling was carried out using software packages and/or with breadboard. Many candidates failed to sketch and model the mechanical outcomes they opted for and failed to explain the choices considered and justify the decisions they made.
Very few candidates explained the social, moral, environmental and sustainability issues created when developing their design proposals. Where PIC programming was used, this often appeared in completed form with little or no explanation, with generally only the very best candidates explaining and showing how programs were developed.
Moderators were pleased to see photographs used to evidence modelling with many candidates modelling shape and size of final outcomes in card. For the manufacturing specification, moderators are looking for candidates to try to provide enough information for a competent 3rd party to be able make the product. This could be conveyed successfully through some sort of formal drawing/sketch/CAD with measurements, a cutting list and a plan of making. Other approaches can also convey the same information.

Criterion 3: Making

Many candidates presented work worthy of being in the top mark band and this work was of an excellent quality and level of demand. Candidates obviously put a great deal of time and effort into this criterion and to be successful, they have to manage their time very well.
In some cases however, candidates were awarded marks from the top mark band where the outcome was not overly demanding or rigorous, or where they had not taken time to hold down circuits and battery packs appropriately, had not fixed or mounted switches appropriately, had not dressed wires neatly, or had not made or attached mechanisms appropriately. Excessive use of glue gun was also visible in some cases. Centres must also provide moderators with detailed photographs of all aspects of the making, including photos to show the quality of soldering if PCBs are made by candidates.
It was very pleasing to see the number of outcomes that had the potential to be commercially viable with further detailed development. There was a significant increase in the number of candidates producing creative products, compared to the old specification.

Criterion 4: Testing and evaluation

There was a significant improvement in the way candidates tackled this element in comparison to the old specification. In the work of many candidates, there was evidence of useful testing of the product in its intended environment, target market feedback and testing against the design criteria. There was also justification given for modifications to the design, together with suggestions for how the product would need to be modified for commercial

production. The best scoring candidates were also evaluating their designs throughout the development process and seeking 3rd party opinions of their designs.

Candidates who did not score highly on this section missed many aspects of the above, possibly through poor time management and not finishing the outcome in the time period available. All candidates should realise that, at 12 marks out of 90, this is a significant element of the controlled assessment work.

Criterion 5

Centres were generally accurate in their assessment for this criterion however there were a significant number of candidates awarded marks in the top band where they had not used appropriate technical language and where the design folder was not focused, concise and containing only relevant material. Frequently a number of key decisions were not appropriately explained.

Conducting controlled assessment tasks.

Centres are reminded of the need to restrict feedback to candidates to generic comments, i.e. feedback given to the whole group. Detailed guidance on conducting the controlled assessment can be downloaded from e-AQA on the secure area of the AQA website, along with the Controlled Assessment tasks. If you don't have access to e-AQA, register on the AQA website, or speak to your examinations officer. Whilst logged onto the site, you will also be able to access the very useful Enhanced Results Analysis service, enabling you to analyse the performance of your candidates once the results are published.

The exemplar materials produced for training meetings over the last few years have been used in many centres to allow pupils to self-assess their work as it progresses. The latest exemplar materials are also available via e-AQA on our Teacher On-Line Standardising section of the website.

Some centres have made use of scaffolding, frameworks, templates etc to assist pupils in the production of their controlled assessment work. Whilst these prove useful in ensuring all candidates have some response to all assessment objectives, they can stifle the creativity of middle and higher ability candidates.

Centres are reminded that controlled assessment tasks will be reviewed and possibly amended for examination submission in 2013.

Administration of assessments

It is evident that exemplar work produced by AQA had been used to assist assessments. The vast majority of centres were within marking tolerance with their folder assessment. Where centre assessment was inaccurate, it was usually most apparent in criteria 2 and 3.

The Candidate Record Form (CRF) was well used by many centres to explain the marks awarded. It was particularly useful to clarify if any help had been given to candidates e.g. routing, welding, setting up machines etc.

Most centres were prompt in the dispatch of marks and requested folders. A few centres did not realise that they need to send all folders where there were 20 candidates or less.

Many centres were very helpful in providing clear photographs of outcomes, thus avoiding the need for moderator visits.

Very few centres sent narrated videos of outcomes, although a few candidates included videos as part of their evaluation of the product.