



## **General Certificate of Secondary Education**

# **Design and Technology (Resistant Materials Technology) 3555 Short Course**

**Coursework**

**3555/C**

## **Report on the Examination**

*2008 examination - June series*

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*Dr Michael Cresswell Director General.*

## ***General***

Once again, the best candidates were creating innovative, original projects. Centres are to be congratulated on encouraging this creativity in their candidates. Wood continues to be the favoured material by the majority, with increasing evidence of acrylic parts, particularly where there has been access to laser cutters. Metal is still the least favoured material, even in centres where there is evidence of considerable work in this material at Key Stage 3! Other materials such as fabrics have been successfully used to enhance products, and some have made good use of electronic circuits to make a working product.

CAD, and CAD/CAM continue to be more evident in candidates' work as confidence grows and provision of hardware spreads. Laser cutters have become significantly more prevalent, with surveys suggesting that approximately a third of centres now have access to them. Their comparative ease of use makes them very accessible to students and has allowed for some very accurate components on projects.

The vast majority of centres were accurate in their assessment of coursework; where there were inaccuracies these tended to be on the making element, where level of demand and / or quality of finish were an issue. Centres appear to be carrying out internal standardisation rigorously.

## ***Design folders***

There appears to have been a slight increase in the size of the average folder in some centres. Where this has happened, it tends to have been an expansion of the research element. The additional work undertaken here has tended to be too generic, and as a result it has not enhanced the overall designing grade. Well-focused research has often included some of the following: relevant measurements, analysis of existing products, questions to clients and potential users (these need to be well-focused), photographic research. The exact nature of research undertaken has varied according to the needs of the design brief, but the best candidates have used research to influence directly the specification and the designing. They have also responded to the needs of their client. Many more successful candidates have carried out minimal but relevant research at the start of the project, and have then carried out additional research during the development stages of the project.

Specifications have been prepared to widely varying standards, the best being directly derived from the brief and research, and then driving the design ideas.

Many moderators have reported a lack of detail in design ideas and particularly in development sections. Candidates should be encouraged to refine, clarify, modify, model (virtual and/or card/foamboard etc.), consider and select constructional details, consider and design for quantity production requirements (jigs, CAD/CAM etc), produce dimensioned drawings and details so that a third party could manufacture the item.

Computer-aided design skills continue to grow, with increasing numbers of candidates producing assembled 3D designs using various software packages. 2D design has been extensively used with laser cutters.

More candidates are producing flowcharts as a plan of making. These have been more efficient to produce than some of the more traditional pictorial story boards. They have also provided the opportunity to demonstrate awareness of quality assurance. Photographic diaries of construction reflect how something was made, rather than gaining credit as evidence of planning.

Industrial practice has been addressed to varying degrees by candidates. Jigs, moulds and formers have been used by many; it is important to put these out for a moderator visit. Use of CAM is also evidence of industrial practice. Where CAM has been used, it is of vital importance for candidates to show all the associated evidence of development work leading up to the final component/outcome made. Screen dumps, evidence of changing settings, adjusting sizes for a better fit of assemblies should all be included to allow full credit to be given.

## ***Outcomes***

Project outcomes are becoming generally smaller in size, allowing candidates time to achieve a better quality finish in the time available. Quality of finish is an issue for some candidates, with, for example, saw marks still evident on edges, burn marks from the sander or laser cutter and pencil markings spoiling some work. Many candidates are creative and innovative in their work, which means that their work usually has a higher level of demand. Level of demand directly affects the interpretation of assessment criteria.

The increase in the number of laser cutters available in centres has allowed more candidates to include CAD/CAM in their projects. Where its use has been extensive within a project, the speed and accuracy with which components can be cut has sometimes allowed the candidate to tackle more ambitious projects. Other candidates have used the time saved to allow them to develop jigs to assist with assembly or with the manipulation of materials. Less demanding projects rapidly produced using a laser cutter do not necessarily represent a shortcut to higher grades.

## ***In conclusion***

The seven design folders used in Autumn 2007 standardising meetings (sent to all schools on CD) have been well received. Centres have found them useful in demonstrating standards to candidates and in increasing accuracy in the assessment of design folders by staff.

Photographs of projects issued in the standardising meetings continue to be well used in centres, both to encourage candidates, and to assist with assessment. We often find the photos prominently displayed on workshop walls on our visits.

We look forward to continued innovation in outcomes and to well-focused folders demonstrating excellent designing.

We would like to thank those centres that have kindly lent the board candidates' work for assessment and training purposes.

## ***Mark Ranges and Award of Grades***

Please see the following link:

<http://www.aqa.org.uk/over/stat.html>