



## **General Certificate of Secondary Education**

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

**Coursework**

**3555/C**

## **Report on the Examination**

*2007 examination - June series*

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## **General**

Candidates across the country continue to demonstrate innovation and creativity at high levels. Centres are to be congratulated on encouraging this from their candidates.

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. Their comparative ease of use makes them accessible to candidates, 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, it tended to be in the upper mark ranges. A very small number of centres had problems with internal standardisation.

## **Design folders**

Design folders are generally becoming more concise in line with the time allowance recommendations. Most are completed in around 20 sides of A3, with some folders achieving A grades in 15 well filled sides. For a significant number of candidates, the bias of the folders is skewed too much towards research at the expense of design ideas and development. Pages of notes on different materials, joints and finishes are not normally needed. It is often sufficient to justify a material choice at the development stage, with a sentence or two explaining the reasons for choice. Samples of materials stuck to pages are definitely not needed. 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) and 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 directly influence the specification and the designing. They have also responded to the needs of their client. In many successful projects, candidates carried out minimal but relevant research at the start of the project, and 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.

Design ideas continue to be effectively communicated by many, by means of numerous rapidly produced sketches. Better candidates may start to develop ideas immediately. Many more candidates are modelling ideas, to assist development, through a combination of 3D card/foamboard/etc models, and 3D CAD. Where 3D models have been made, the better candidates have photographed them, printed out the photographs, stuck them to the centre of the page and have sketched and annotated around the photograph. ProDesktop and 2D Design are continuing to grow in popularity as CAD packages, but other CAD software has been used well. Often CAD is adopted at an earlier stage to assist in the development of ideas, and the best candidates are creating sophisticated, assembled designs.

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 given the opportunity to demonstrate awareness of quality assurance.

Industrial practice has been considered with variable quality. Weak candidates have often ignored it altogether. Others have merely “bolted-on” theory notes on, for example, vacuum forming. The best candidates have considered industrial practice throughout the folder, thinking about how their designs might be adapted for quantity production. They then proceeded to design jigs etc to assist with manufacture in quantity. Where jigs and formers are made, it is important that these are made available should the moderator wish to visit. It may be useful to include photographs of the jigs in use. The designing of the jigs can also enhance the designing grade, if included in the folder. Use of CAM is also evidence of industrial practice.

### **3D Outcomes**

Materials used in projects tend to be wood based in the majority of projects, but there is a tendency towards an increasing use of other materials. This often allows the candidates to demonstrate a wider range of skills.

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 off 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 the 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 manipulation of materials. It is important that centres making assessments encourage candidates to see these opportunities. Less demanding projects rapidly produced using a laser cutter do not necessarily represent a shortcut to higher grades. Further guidance on this will be given in the Autumn training materials.

In conclusion, the four design folders used in Autumn 2006 standardising meetings (sent to all centres on CD ROM) have been well received. Centres have found them useful in demonstrating standards to candidates, and to allow for increasing accuracy in assessment of design folders by staff. Further examples will be made available this Autumn.

Photographs of projects issued in these meetings continue to be well used in centres, both to encourage candidates, and to assist with assessment.

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

AQA would like to thank centres which have kindly lent their 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>