



External Assessment Report 2012

Subject(s)	Product Design
Level(s)	Intermediate 2

The statistics used in this report are pre-appeal.

This report provides information on the performance of candidates which it is hoped will be useful to teachers/lecturers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding. It would be helpful to read this report in conjunction with the published question papers and marking instructions for the examination.

Comments on candidate performance

General comments

Candidate performance in 2012 was quite similar to 2011. There was a slight increase in performance in the Design Assignment, but performance in the Question Paper was virtually unchanged.

Design Assignment

The context of the Design Assignment (Scottish Engineering/Falkirk Wheel) seemed to capture the candidates' imagination and due, perhaps, to the variety of stimulating shapes and forms in the photographs and researched images that accompanied the tasks, candidates were able to produce a wide variety of ideas. Not only did this benefit candidates in the Design Ideas stage, but it also stimulated their development of these initial ideas further on in the folio.

Towards the end of the Design Assignment, there seemed to be an increase in the number of candidates using CAG software for their final design proposals. In the vast majority of cases this was beneficial to the candidate as the computer graphics clearly communicated the intended design proposal.

Question Paper

The Question Paper proved to be an appropriate test of candidates' knowledge and understanding of design, with questions performing as would have been expected.

Some candidates were let down in the Question Paper by having poor examination technique. For example, a number of candidates duplicated answers within questions, which is contrary to the instructions on the front cover, and resulted in them achieving zero marks for their second response, regardless of the fact that it might have been factually correct. This suggests that candidates do not, perhaps, read the instructions on the front cover, or are unaware that this practice is unacceptable.

As an example, in Question 1(a) if a candidate was awarded 2 marks for stating that tubular steel was appropriate for a kitchen stool because it is *strong and lightweight*, they cannot be awarded a further 2 marks for stating that laminated beech plywood was suitable for the stool because it is *strong and lightweight*. On occasion, throughout the exam, a number of candidates fell foul of this rule.

It was also apparent that some candidates cannot distinguish between the command words: 'state', 'describe' and 'explain'. One of these three words begins each question in the Intermediate 2 Question Paper (apart from the question which asks candidates to 'match' a variety of products with their most appropriate manufacturing technique).

In many cases, candidates gave brief one or two-word answers to questions that required a lengthier description or explanation.

If candidates are asked to 'describe' an evaluation technique, for example, they are really being asked what would actively be done, from a task/process/activity point of view, to evaluate the relevant aspect of the product. Many candidates simply 'named' a technique and said nothing more. For example, in Question 5, when asked to 'describe' an evaluation technique for the 'ease of use' of a hand-held game, many candidates simply wrote 'user trial' and nothing more.

Acknowledging the literacy of some Intermediate 2 candidates who did this, the Marking Instructions for this question do award a single mark for appropriately 'stating the name' of the technique, but a more comprehensive response would have been desirable.

Areas in which candidates performed well

Some of the 'General Comments' above should be read in conjunction with this section.

Design Assignment

Candidates performed very well in this component, especially in the Initial Ideas and Communication of Design Proposal sections. It was not uncommon for candidates to score 10 out of 10 and 5 out of 5 respectively in these sections.

However, candidates should avoid putting 'too much' into the Initial Ideas section, as this can sometimes lead to them having difficulty giving further development and exploration of their chosen idea. Sometimes the final Design Proposal could change very little from the Initial Idea, and although this would not adversely affect these 2 sections, the candidate would be unlikely to score highly for Development.

Question Paper

Overall, candidates performed well in each question, measuring their knowledge and understanding appropriately.

Question 1: generally good throughout

Question 2: generally good throughout

Question 3: generally good throughout

Question 4: generally good throughout

Question 5: generally good throughout

Question 6: generally good throughout

Areas which candidates found demanding

Some of the 'General Comments' above should be read in conjunction with this section.

Design Assignment

Development towards a Design Proposal

In this section most candidates scored 11–15 marks, out of a possible 20. Many would have gained a mark or two by actively using the Anthropometric Data that was supplied.

Furthermore, a simple 'tick box' beside their final proposal isn't sufficient to show that it meets the requirements of the specification.

Usually, assignments fail to attract marks in this section because the candidate hasn't really explored a variety of possibilities for their design proposal and has, too quickly, 'homed in' on a final solution. Candidates should compare their work with the 16–20 mark descriptor in the Design Assignment Guidance document, issued by SQA and available on the Intermediate 2 Product Design pages of SQA's website www.sqa.org.uk.

Communication Section: Recording and justification of decisions taken

Some candidates used virtually a full page at the end of their initial ideas, producing a matrix that compared their ideas with the specification. Whilst this is a worthwhile activity from a design point of view (as it focuses the designer on their next step), it only contributes a single mark to the Design Assignment, as it is effectively a single justified decision about which design idea to take forward. Many candidates seem to spend a great deal of time on this for little reward.

Further on in the assignment, many candidates annotated their graphics with comments like 'this could/would be made of aluminium or stainless steel', and then their final proposal is made from stainless steel. This, unfortunately, doesn't attract marks as a **justified** decision, no matter how sensible or correct their suggestion might be. All that is required in this case would be for the candidate to write, 'This component will be made from stainless steel because it will not rust in an outdoor environment'. When marking these, Markers frequently have difficulty trying to identify five justified decisions across the folio.

Candidates would fare better if they simply listed five justified decisions towards the end of the development stage, just prior to their final proposal graphic.

Clarity of Communication throughout the Design Assignment

Candidates' work attracts marks here by being clear and easy to follow. On occasion, candidates produce work with confusing graphics and meaningless text. Work of this nature will only ever be able to attract marks in the lower ranges.

The Design Assignment Guidance gives a bulleted list of responses that the assignment should contain to score highly for this aspect of the folio. The majority of candidates score somewhere in the 6–10 mark range for this, but to score highly it is important that their models and/or graphics show as many of the features itemised at the fifth bullet as possible:

dimensions/materials/finishes/texture/special features. In addition, the work would need to be clear, and should flow.

Question Paper

- Question 1(a)(iii) Some candidates had little idea of what this material was.
- Question 1(b) Many candidates simply described one way in which the design of the stool had been influenced by each ergonomic aspect, rather than two. A significant number of candidates were confused between some of the words in the question. For example, they confused Physiology with Psychology and also Anthropometrics with Aesthetics.
- Question 1(b)(i) The easiest way to attain marks here is to match a human dimension with a particular dimension of part of the product.
- Question 1(b)(ii) The easiest way to attain marks here is to match various verbs (lifting, bending, folding, carrying etc.) with aspects of the product.
- Question 1(b)(iii) The easiest way to gain marks here is to link aspects of the product with human feelings/emotions, but try to do this from a functional point of view. Avoid focusing on the aesthetics of the product, although the candidate may be writing about how it looks.
- Question 1(c)(i) Some candidates were unsure what was meant by 'laminated beech' and thought that it was coated in plastic, in the way that paper is laminated for ID cards.
- Question 1(c)(ii) Candidates' response to this question was generally good.
- Question 1(c)(iii) Some candidates became confused between economics, ergonomics and the environment.
- Question 2 Candidates' response to this question was generally good.
- Question 3(b) Some candidates had little idea of what 'standard components' were and interpreted this as items such as microwave ovens and toasters, which they saw as standard items that you would have in a kitchen.
- Question 4 A surprisingly high number of candidates scored very poorly in this question, although, conversely, candidates from some centres scored 4 out of 5 or 5 out of 5 across the board.
- Question 5 Many candidates gave minimal or repetitive responses for this question.
- Question 6 Candidates' response to this question was generally good.

Advice to centres for preparation of future candidates

Question Paper

Centres should give candidates the opportunity to practice past papers, to ensure that they are familiar with the style and format.

Centres should ensure that candidates clearly understand the difference between 'state', 'describe' and 'explain', as this would help them to respond in an appropriate manner. It is clear that the vast majority of centres prepare candidates well for the exam, from the point of view that the candidates have a considerable subject-specific knowledge base. Unfortunately, some candidates lack 'exam technique' and give inappropriate or repetitive responses, therefore reducing their final mark.

Repetition of responses in this manner can result in candidates losing several marks across the paper.

It is important that candidates practice past papers and that their teachers have both the time and opportunity to provide them with constructive feedback, not just about the factual content of their responses, but also about the appropriateness of their responses in relation to the precise wording of each question.

Design Assignment

Centres have differing approaches to the Design Assignment — some opting to allocate a distinct bloc of time for the candidate to complete the work, while others spread the task out over a longer period. However, it is important to find a formula which works for them, the candidate and their circumstances.

Centres should be mindful of the SQA's guidance documentation regarding plagiarism, and ensure that appropriate guidance is given to candidates. For example, it might be appropriate for candidates to research images on the internet, but it would be inappropriate for candidates to print these out and trace them into their folios as 'Initial Design Ideas'.

It is also worth noting that many candidates submit only six or seven pages but still achieve marks in the high forties. This is due to the quality of the work, rather than the quantity.

Staff should ensure that candidates have a copy of the SQA publication *Product Design: Design Assignment Guidance for Intermediate 2*, so that the requirements for the Design Assignment and the mark allocation are clear for each aspect.

It would be of considerable help to those marking the candidates' work if centres could ensure that each submitted A3 sheet has both a page number and the candidate's name on the reverse, and that the fly-leaf has been correctly completed.

General Communication

There were a small, but significant number of candidates who submitted work that was either in an extremely small font, or virtually illegible due to very poor handwriting. All Markers are experienced teachers who are well used to reading the handwriting of S4–6 candidates, but there are, nevertheless, a few candidates who may have lost marks due to the fact that Markers, even with the help of a colleague, were unable to decipher their work.

Candidates sometimes colour-coded their text and annotations using coloured pencils or a range of highlighters, thinking that this would enhance their work. More often than not, rather than having a positive outcome, this detracted from the legibility and clarity of their work.

As the Units in this course require candidates to produce a range of graphics, within a design context, and to an appropriate standard, it is both surprising and unfortunate that the lack of communication and clarity in the graphics in some submissions resulted in candidate's work failing to attract marks.

Statistical information: update on Courses

Intermediate 2

Number of resulted entries in 2011	993
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Number of resulted entries in 2012	1108
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Statistical information: Performance of candidates

Distribution of Course awards including grade boundaries

Distribution of Course awards	%	Cum. %	Number of candidates	Lowest mark
Maximum Mark 100				
A	37.5%	37.5%	416	72
B	26.4%	64.0%	293	62
C	18.2%	82.2%	202	52
D	4.3%	86.6%	48	47
No award	13.4%	100.0%	149	-

General commentary on grade boundaries

- ◆ While SQA aims to set examinations and create marking instructions which will allow a competent candidate to score a minimum of 50% of the available marks (the notional C boundary) and a well prepared, very competent candidate to score at least 70% of the available marks (the notional A boundary), it is very challenging to get the standard on target every year, in every subject at every level.
- ◆ Each year SQA therefore holds a grade boundary meeting for each subject at each level where it brings together all the information available (statistical and judgemental). The Principal Assessor and SQA Qualifications Manager meet with the relevant SQA Business Manager and Statistician to discuss the evidence and make decisions. The meetings are chaired by members of the management team at SQA.
- ◆ The grade boundaries can be adjusted downwards if there is evidence that the exam is more challenging than usual, allowing the pass rate to be unaffected by this circumstance.
- ◆ The grade boundaries can be adjusted upwards if there is evidence that the exam is less challenging than usual, allowing the pass rate to be unaffected by this circumstance.
- ◆ Where standards are comparable to previous years, similar grade boundaries are maintained.
- ◆ An exam paper at a particular level in a subject in one year tends to have a marginally different set of grade boundaries from exam papers in that subject at that level in other years. This is because the particular questions, and the mix of questions, are different. This is also the case for exams set in centres. If SQA has already altered a boundary in a particular year in, say, Higher Chemistry this does not mean that centres should necessarily alter boundaries in their prelim exam in Higher Chemistry. The two are not that closely related as they do not contain identical questions.
- ◆ SQA's main aim is to be fair to candidates across all subjects and all levels and maintain comparable standards across the years, even as arrangements evolve and change.