Course Report 2018

Subject	Design and Manufacture
Level	Higher

This report provides information on the performance of candidates. Teachers, lecturers and assessors may find it useful when preparing candidates for future assessment. The report 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 assessment documents and marking instructions.

The statistics used in this report have been compiled before the completion of any Post Results Services.

Section 1: comments on the assessment

Summary of the course assessment

Component 1: assignment

The assignment is allocated a total of 70 marks. It is internally marked by centres and verified by SQA visiting verifiers.

There was no change to the assignment and it performed as expected, giving candidates full opportunity to demonstrate the skills, knowledge and understanding they had gained in the course. A wide range of evidence was generated and all assignments which were verified had been fully completed.

Component 2: question paper

The question paper consisted of two sections totalling 70 marks and was structured in the same way as previous papers and the published specimen question paper. The question paper sampled both units and incorporated a mixture of short response and extended-response questions.

The question paper performed in line with expectations and feedback from the marking team suggested that it discriminated well and was fair in terms of course coverage and overall level of demand.

Section 2: comments on candidate performance

Areas in which candidates performed well

Component 1: assignment

Candidates generally produced good evidence for section 1: generating ideas. A large number of candidates produced very good evidence for section 3: applying graphic techniques.

Component 2: question paper

Candidates generally performed well in these questions:

Question 1

a) Answered well by most candidates. Candidates should avoid duplication and explain six different properties/characteristics of the materials given. The answers should be appropriate to the products. There was no requirement for candidates to cover materials from both products in their answer.

b) Answered well by most candidates. Candidates were given credit where a correct explanation was given to an incorrect process. There was no requirement for candidates to cover both products in their answer.

d) Answered well by most candidates.

Question 2

a) Generally answered well, though candidates struggled to name an appropriate thermosetting plastic; they were however given credit if a correct explanation was given for an incorrect material.

Question 3

b) Answered well by most candidates. Candidates had to relate anthropometrics to a part of the product to be awarded marks for this question. The use of incorrect percentiles ranges was ignored.

c) Answered well by many candidates.

Question 4

a) Answered well by most candidates.

c) Answered well by most candidates.

d) Answered well although some candidates only referenced the kitchen utensils in their answer. This made it difficult for them to access the full range of marks available.

Question 5

b) Answered well by most candidates.

Areas which candidates found demanding

Component 1: assignment

A significant number of candidates carried out very little exploration or refinement, simply making very minor changes to one of their initial ideas. This impacted on marks for sections 2–6.

Section 2: Exploring and refining ideas. A significant number of candidates simply described how they were going to make one of the initial ideas and carried out very little exploration or refinement. There was often little or no reference to the Design Information Record (DIR).

Section 3: Applying graphic techniques. Although a significant number of candidates demonstrated excellent graphic skills, the range was often limited because very little exploration and refinement had taken place. There was often little application of the graphics, and often the same graphic was repeated throughout the evidence.

Section 4: Applying modelling techniques. Although there was improvement in this section, demonstration of modelling skills was still often limited because very

little exploration and refinement had taken place. A large number of candidates produced models which were superficial and did nothing to advance the proposal. There was often no indication of what the purpose of the model was or what had been learned from it.

Section 5: Applying materials and processes. There was often very superficial application of knowledge of materials and processes. Candidates, at this level, are expected to apply detailed knowledge and understanding of materials and processes to the development of their proposal.

Section 6: Applying knowledge and understanding of design issues. Again, there was often very superficial application of knowledge of design issues. Again, there was often no reference to the DIR.

Component 2: question paper

Candidates had difficulty with these questions:

Question 1

c) Answered poorly. Many candidates referred to psychological aspects of the products rather than discussing the aesthetics, for example it looked safe, it looked stable.

e) Answered poorly. Candidates clearly understood production and planning systems but struggled to describe how they could be used to improve efficiency

Question 2

b) Many candidates struggled to identify compression moulding as the correct manufacturing process. They were given credit if they identified thermo set injection moulding as a suitable process. No marks awarded for injection moulding.

Question 3

a) Answered poorly. Many candidates gave the benefits of idea generation techniques rather than describing the technique.

Question 4

b) Answered poorly by many candidates

Question 5

a) Answered poorly. Many candidates clearly did not understand the terms technology push and market pull.

c) Many candidates gave generic modelling answers to this question rather than answers that were specific to rapid prototyping.

d) Answered poorly. Candidates could identify testing methods but struggled to identify the type of information that could be gained from testing.

e) Answered poorly. Many candidates clearly did not understand the term planned obsolescence.

Question 6
This question was designed to assess candidates' understanding of the role of design team members and how they influence each other's decisions.

There was a wide range of responses to this question. Some candidates managed to answer well using good examples to illustrate their points and some candidates gave very generic answers that did not demonstrate clear understanding.

Many candidates gave a brief description of the roles of the design team members and made little or no reference to how they influenced each other's decisions. Marks for these responses were restricted to the bottom two bands of the range statement table.

Section 3: advice for the preparation of future candidates

Component 1: assignment

The Design Information Record (DIR) should be completed by candidates before they undertake the task. The information on the DIR provides much of the direction for the exploration and refinement of the proposal.

Candidates should apply the skills which they have gained throughout the course. In particular, they should:

- use idea generation techniques to ensure that they access full marks in section 1
- be able to explore and refine ideas. In doing so they are require to apply modelling and graphic techniques and knowledge of materials, processes and design issues, resulting in enhanced marks for sections 2-6

Component 2: question paper

Centres are advised to use the exemplar materials (for example, specimen/past question papers and marking instructions) which are available on SQA's website, when preparing candidates for the examination.

Preparation for the question paper should also include training in examination techniques and in producing acceptable responses to questions.

Many candidates are not *describing* or *explaining* their answers in sufficient detail for a question paper at Higher level. Candidates will continue to struggle to produce extended answers in the question paper if they have not been used to doing this in class.

Candidates should be encouraged to discuss and debate to enable them to acquire a technical vocabulary that will enable them to produce acceptable answers to questions in the question paper.

In addition, candidates should consider the mark allocation for individual questions when producing a response. A four-mark question generally means four correct statements must be provided to achieve full marks.

The course specification contains a section on course coverage. This section lists all the available areas of sampling for production of the question paper. Teachers and lecturers are advised to familiarise themselves with the mandatory content to prepare candidates to respond to these areas of questioning.

Grade boundary and statistical information:

Statistical information: update on courses

Number of resulted entries in 2017	3021

Number of resulted entries in 2018	2820

Statistical information: performance of candidates

Distribution of course awards including grade boundaries

Distribution of course awards	Percentage	Cumulative %	Number of candidates	Lowest mark
Maximum mark				
A	14.3%	14.3%	403	103
B	19.8%	34.1%	559	89
C	27.0%	61.1%	761	75
D	12.4%	73.5%	349	68
No award	26.5%	-	748	-

General commentary on grade boundaries

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.

SQA aims to set examinations and create marking instructions which 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.

Therefore SQA holds a grade boundary meeting every year for each subject at each level to bring 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.

Grade boundaries from exam papers in the same subject at the same level tend to be marginally different year to year. This is because the particular questions, and the mix of questions, are different. This is also the case for exams set by centres. If SQA alters a boundary, this does not mean that centres should necessarily alter their boundary in the corresponding practice exam paper.