



Course Report 2017

Subject	Design and Manufacture
Level	Advanced Higher

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

This report provides information on the performance of candidates which it is hoped will be useful to teachers, lecturers and assessors in their preparation of candidates for future assessment. 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 assessment documents and marking instructions.

Section 1: Comments on the assessment

Summary of the course assessment

Component 1: project

The project for Advanced Higher Design and Manufacture is allocated a total of 120 marks. Candidates are allowed to choose their own task.

Component 2: question paper

The question paper consists of two sections: Section 1 totalling 30 marks and Section 2 totalling 50 marks. The paper was structured in the same way as previous question papers. Section 1 focused on product evolution, and required extended response to explain and describe type questions. Section 2 focused on product development and product analysis, and required extended response to explain and describe type questions.

The question paper performed in line with expectations, and feedback from the marking team and from practitioners suggested that it 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: project

Project planning: most candidates produced clear project plans, with many of them following the same structure as that in the exemplars which had been issued by SQA.

Applying graphic techniques to inform and communicate design decisions: most candidates demonstrated a high level of skill in their application of graphics.

Component 2: Question Paper

Question 1(a) All candidates attempted this question. Responses were generally better than last year, with the majority of the candidates answering the question. However, again, too many candidates provided an account of the evolution of a product instead of focusing on technology and materials. A lot of general knowledge was used to answer this question, rather than referencing course work. Some answers lacked appropriate depth and detailed knowledge.

Question 1(c) This question was answered well. Some candidates did not focus on products and provided a general description of the designer's approach and philosophy. Some designers chosen were obscure and not suitable for answering the question. A number of candidates

selected a design movement when a designer was asked for in the question

- Question 2(a) Candidates generally performed well. Many candidates identified the issues, but did not describe the influence on the product. Some candidates did not consider the context of the question and focused on generic design factors and influences.
- Question 3(b) This question was attempted by all candidates, with the majority gaining half marks. Most answers centred on staff training and testing. The majority of descriptions lacked detail or depth to gain marks in the top band.
- Question 4(a) Part(i) was answered well by the majority of candidates. Better quality answers were for the replaceable sole, whilst answers for outer shell were thinner, generic or repeated.
- Question 4(b) Candidates generally performed well. The majority of candidates referenced the VACOped boot and provided detailed descriptions on both physiology and psychology. Some candidates confused the two terms.
- Question 5(c) Generally well answered by most candidates. Some candidates did not fully address the question and considered launching products in general, rather than more radical products, which was the focus of the question. Knowledge of marketing was largely restricted to a range of advertising strategies.

Areas which candidates found demanding

Component 1: project

Generating and developing ideas towards a design proposal: A number of candidates demonstrated very little skill in the development of their ideas. Development was often very superficial and lacked any evidence of application of knowledge and understanding of key areas of the course, such as materials and manufacturing processes or design issues.

Applying modelling techniques to inform and communicate design decisions: A number of candidates made little or no use of modelling. Models were often tokenistic and lacked purpose.

Applying knowledge and understanding of materials and manufacturing processes: A number of candidates demonstrated very little knowledge of materials and processes at the level required for Advanced Higher. This had a direct impact on the development of their proposal.

Applying knowledge and understanding of design issues: A number of candidates demonstrated very little knowledge of design issues at the level required for Advanced Higher. Again, this had a direct impact on the development of their proposal.

Component 2: question paper

- Question 1(b) This question was not answered well by the majority of candidates. Many did not focus on changes to products, and offered a generic answer on why products fail in the market place. Nearly all based their answer on the iPhone, with varying degrees of knowledge and personal opinions. Many of the answers provided were not based on the course and lacked factual information.
- Question 1(d) This question was not answered well by the majority of candidates. Candidates appeared to have a lack of knowledge and understanding of production systems and their impact on products. Candidate answers were limited to mass production and speed of production. Many candidates described the influence of production processes (injection moulding) rather than production systems.
- Question 1(e) This question was not answered well by the majority of candidates. Many candidates answered this question the wrong way around — describing how products have influenced our lifestyle, as opposed to how lifestyle has influenced products. Very few candidates referenced their course work or structured their answers around the latest technology available today.
- Question 1(f) This question was not answered well by the majority of candidates. Many candidates did not have specific knowledge of **emerging** technologies and materials, so answers were based on general technology and materials. Answers tended to be very generic and lacked depth.
- Question 2(b) This question was not answered well by the majority of candidates. The topic of the question appears regularly in past papers at this level. Candidates did not respond to the question that was asked, opting to describe two different advertising techniques rather than comparing the difference between marketing for the developed and developing worlds. Very poor and inaccurate knowledge of the developing world created problems when answering this question.
- Question 3(a) This question was not answered well by the majority of candidates. Candidates had very limited knowledge of advancing technologies and did not focus on the production of specific products. Most answers were generic and limited to 3D printing. Information was often inaccurate.
- Question 4(a) Part (ii) of this question was not answered well by the majority of candidates. Candidates displayed knowledge of volume of production and provided generic influences on production methods. Very few referenced the VACOPed boot. Many candidates described suitable processes to manufacture the boot. The information was correct but did not answer the question

- Question 5(a) This question was not answered well by the majority of candidates. Many candidates did not respond to the question asked and described conditions where design opportunities may arise, rather than how they are identified. Answers were limited in detail and focused on market research.
- Question 5(b) This question was not answered well by the majority of candidates. Many candidates did not respond to the question asked and focused their answer on materials, when the question was on ways other than materials. Most answers lacked breadth or depth and repeated information on transport or packaging. Many candidates drew on general knowledge to answer this question, resulting in generic statements that lacked content and detail for this level of study.
- Question 6 This was poorly answered by the majority of candidates. The question required knowledge and understanding of different modelling techniques and how they could be applied to develop function, safety and ergonomics. Candidates provided generic benefits of modelling, and chose poor modelling techniques of each of the issues. Candidates described the modelling technique opposed to describing their use in resolving issues. Candidates who referenced their own design work tended to score better in this question.

Section 3: Advice for the preparation of future candidates

Component 1: project

A significant number of candidates undertook tasks which were very restricted and did not allow them to generate strong evidence of the assessable skills. Assessors should provide advice on the suitability of tasks.

Candidates must be prepared with the skills and knowledge at an Advanced Higher level to apply them in the project.

Centres are advised to refer to the exemplars, available on the SQA secure site.

Component 2: question paper

- ◆ Preparation for the question paper requires more than revision. Skills, knowledge and understanding need to be developed throughout the course. Candidates should be provided with a range of opportunities during the course to improve their ability to respond to Advanced Higher questions.
- ◆ Success in the question paper requires a range of skills as well as knowledge and understanding. It is important that candidates are made aware of these skills and are given the opportunity to gain and practise them throughout the course.

- ◆ Candidates must ensure they are reading questions fully before they attempt to answer them, and must know how to respond to the different command words used in the question paper.
- ◆ Candidates must develop the skills required to provide descriptions and explanations.
- ◆ Candidates should be encouraged to plan their answers, and think about what is being assessed and what part of the course or products could be referenced in the answer. Lack of planning can lead to unnecessarily long answers or excessive repetition.
- ◆ Candidates should be encouraged to use information gained from the course and avoid using generic information or general knowledge when answering questions.
- ◆ Candidates should take the opportunity to investigate and analyse as many products as possible during the course. This can then be used to provide detail or examples when responding to the question paper.
- ◆ Candidates should avoid referencing products that have not been studied during their course when answering questions.
- ◆ Candidates should consider the mark allocation for each question and tailor their answer accordingly to avoid writing too much or too little when responding to questions.
- ◆ Using past papers is an effective method for improving skills and assessing knowledge and understanding. However, it is important that candidates are given the opportunity to experience these under exam condition and time constraints. Formative assessments and feedback on performance are also important when developing exam skills and confidence.

Whilst it was pleasing to see that the conditions of assessment for coursework were adhered to in the majority of centres, there were a small number of examples where this may not have been the case. Following feedback from teachers, we have strengthened the conditions of assessment criteria for National 5 subjects and will do so for Higher and Advanced Higher. The criteria are published clearly on our website and in course materials and must be adhered to. SQA takes very seriously its obligation to ensure fairness and equity for all candidates in all qualifications through consistent application of assessment conditions and investigates all cases alerted to us where conditions may not have been met.

Grade Boundary and Statistical information:

Statistical information: update on Courses

Number of resulted entries in 2016	70
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Number of resulted entries in 2017	82
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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 -				
A	9.8%	9.8%	8	154
B	20.7%	30.5%	17	134
C	23.2%	53.7%	19	114
D	15.9%	69.5%	13	104
No award	30.5%	-	25	-

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.