GCE Examiners' Report

Design and Technology

GCE AS/A2 Level

Summer 2024

Introduction

Our Principal examiners' report provides valuable feedback on the recent assessment series. It has been written by our Principal Examiners and Principal Moderators after the completion of marking and moderation, and details how candidates have performed in each unit.

This report opens with a summary of candidates' performance, including the assessment objectives/skills/topics/themes being tested, and highlights the characteristics of successful performance and where performance could be improved. It then looks in detail at each unit, pinpointing aspects that proved challenging to some candidates and suggesting some reasons as to why that might be.[1]

The information found in this report provides valuable insight for practitioners to support their teaching and learning activity. We would also encourage practitioners to share this document – in its entirety or in part – with their learners to help with exam preparation, to understand how to avoid pitfalls and to add to their revision toolbox.

Further support

Document	Description	Link
Professional Learning / CPD	WJEC offers an extensive programme of online and face-to-face Professional Learning events. Access interactive feedback, review example candidate responses, gain practical ideas for the classroom and put questions to our dedicated team by registering for one of our events here.	https://www.wjec.co.uk/home/professional-learning/
Past papers	Access the bank of past papers for this qualification, including the most recent assessments. Please note that we do not make past papers available on the public website until 12 months after the examination.	Portal by WJEC or on the WJEC subject page
Grade boundary information	Grade boundaries are the minimum number of marks needed to achieve each grade. For unitised specifications grade boundaries are expressed on a Uniform Mark Scale (UMS). UMS grade boundaries remain the same every year as the range of UMS mark percentages allocated to a particular grade does not change. UMS grade boundaries are published at overall subject and unit level. For linear specifications, a single grade is awarded for the subject, rather than for each unit that contributes towards the overall grade. Grade boundaries are published on results day.	For unitised specifications click here: Results, Grade Boundaries and PRS (wjec.co.uk)

[1] ***Please note that where overall performance on a question/question part was considered good, with no particular areas to highlight, these questions have not been included in the report.***

Exam Results Analysis	WJEC provides information to examination centres via the WJEC Portal. This is restricted to centre staff only. Access is granted to centre staff by the Examinations Officer at the centre.	Portal by WJEC
Classroom Resources	Access our extensive range of FREE classroom resources, including blended learning materials, exam walk-throughs and knowledge organisers to support teaching and learning.	https://resources.wjec.co.uk/
Bank of Professional Learning materials	Access our bank of Professional Learning materials from previous events from our secure website and additional pre-recorded materials available in the public domain.	Portal by WJEC or on the WJEC subject page.
Become an examiner with WJEC.	We are always looking to recruit new examiners or moderators. These opportunities can provide you with valuable insight into the assessment process, enhance your skill set, increase your understanding of your subject and inform your teaching.	Become an Examiner | WJEC

Contents

Executive Summary

The style and structure of the 2024 AS Level Product Design paper closely followed the established format for the current qualification and tested of a wide range of topics across the specification. To ensure accessibility different types of questions were asked including low tariff questions to more challenging and demanding questions that require candidates to demonstrate their knowledge and understanding in extended responses. With a number of past papers currently in existence, and with the support of question banks, all candidates seemed familiar with the format of the paper.

The paper was considered accessible to most candidates. However, in some cases, it was evident that candidates had not prepared thoroughly for the examination and did not have the in-depth knowledge that might be expected. Some lacked technical knowledge and understanding that would have enabled them to respond at a higher level.

There was an increase in questions 'not attempted' or only 'partially attempted'. A significant number of candidates achieved a total mark below 40 and, in some cases well below, with very few achieving total marks above 65.

Fashion & Textiles

The number of entries for this qualification is low with the majority female.
With no evidence of any particular question causing concern, the paper was considered accessible to most candidates. In many cases, it was evident that candidates had not prepared thoroughly for the examination and in the depth that might be expected. Many lacked the technical knowledge and understanding that would have enabled them to respond at a higher level. This year's cohort were much weaker and seemed less well prepared than in any previous series.

Engineering Design

The number of candidates entered for this unit had not increased significantly on previous years. Generally, the performance by candidates was disappointing as many appeared to have not prepared for the examination in the detail that is required at this level. Knowledge and understanding of broader technical issues and concepts were evident in many cases, but specific knowledge of materials, components, mechanisms, and systems appeared to be underdeveloped. In some cases, it was evident that candidates had not taken time to read the questions carefully and produced answers that were not directly relevant.

Candidates should be reminded to consider the total number of marks available for each question and to allocate a proportional amount of time accordingly. The marks for Question 6 are worth 50% of the total for the paper and this section should take approximately fifty minutes to complete.

Centres are strongly encouraged to direct candidates to the Digital Resources Section of the WJEC Website where an examination walk through can be used to help them prepare for answering the type of questions that might be anticipated.

Unit 3

Product Design

Nearly all candidates answered questions 1-9, but there was a noticeable decline compared to last year in the number of candidates attempting question 10. This trend suggests a need for further focus on preparing students to tackle more challenging and high-stakes questions.

Most candidates recognise the importance of thoroughly reading questions and focusing on key command words. However, it is evident that responses requiring longer, more detailed analysis, evaluation, and discussion lacked proper structure and planning. Many candidates did not fully address all aspects of these high-tariff questions, thereby limiting their ability to achieve higher marks. This indicates a potential area for development in helping students to effectively organise and elaborate on their thoughts in extended responses.

Questions 3 and 10 showed the greatest variation in responses. Candidates struggled to identify the correct smart materials required for the three products mentioned in the question stem. This suggests a gap in understanding specific content areas related to smart materials and their applications, which could be targeted for improvement in future lessons and revision sessions.

On a positive note, candidates demonstrated a solid understanding of CAD and global manufacturing, as evidenced by the strong responses to question 2 from many candidates. This shows that while there are areas needing improvement, there are also significant strengths in the current curriculum and teaching methods that can be built upon.

Fashion & Textiles

The 2024 GCE A level Fashion and Textiles examination paper was similar in structure, style and demand to previous examination series. Topics were drawn from across the specification, questions varied and were set to test candidates' ability to demonstrate knowledge, understanding and skills acquired over the two-year period of study. The number of entries has fallen considerably and is very low when compared to Product Design.

The paper was considered very accessible with a 100% attempt rate for all questions although some questions proved more challenging than others. Most candidates have an adequate breadth of knowledge that allows them to access some marks but do not have sufficient depth of technical knowledge and understanding that would enable them to access the full range of marks available. Subject specific technical knowledge continues to be weak and is a concern. Overall performance is similar to past series.

As all questions are set in a context, it is important that candidates read and carefully consider all the information before attempting a response. Too often key facts are overlooked meaning the response is either incorrect or only partially answers the question. Regular practice answering exam style questions is essential in addressing this issue. There were many examples of excellent responses throughout the paper however these questions related to overarching principles rather than subject specific technical knowledge. Most candidates scored well on question 10, one of the AO3 questions, which was based on ethics and sustainability in fashion and textiles. Similarly question 6 on Health and Safety in fashion and textiles, most candidates scored well. Questions 1 and 3 bore similar outcomes.

The context for questions 4 and 5 required candidates to demonstrate knowledge and understanding of fibres - hemp and wool respectively. These were the least accessible questions on the paper, and clearly demonstrate a lack of subject specific technical knowledge that is expected at this level. It is however consistent with past series.

Engineering Design

A limited number of centres continue to provide entry for this qualification. The cohort for this qualification continues to be small. Retention rates from AS to A2 are around 50%. The 2024 paper was well received with 100% attempt rate throughout, with the exception of question 10. The quality of responses varied, and it is important to note that candidates are expected to cover the whole specification in detail in order to fully access the paper. Some responses lacked the in-depth technical knowledge and understanding that is expected at this level. With such small numbers, it is difficult to establish statistical patterns, as outcomes generally depend on the centre and quality of the candidates.

NEA - Unit 2 & Unit 4

In general, the majority of centres applied the assessment criteria consistently and fairly, but close scrutiny is required to the mark bands if high or full marks are to be awarded. Several of the shortcomings highlighted in the reports from previous years were once again still evident at some centres despite WJEC releasing a range of NEAs for standardising purposes. Important that requirements for moderation as set out in the specification and closely followed.

Some of the research witnessed was far too general and did not contribute to the possible need focused in on. Care is needed to ensure that access to the higher mark bands is possible, because without focused research, access to the higher bands is not possible. Candidates need to be encouraged to use a variety of different strategies.

Evidence was lacking by several candidates showing how the design brief and design specification has been arrived at, and a thorough understanding and requirements of the task ahead. The design specification needs to direct and inform the designer whilst developing the design. Several centres had assessed this section too generously due to a lack of measurable and objective criteria being evident.

Some candidates demonstrated a thorough use of relevant modelling and testing of ideas, driven by the design specification, which supported their decision-making. Candidates need to be encouraged to develop their iterative journey as much as possible and consistently record their findings appropriately. Several candidates would benefit from producing more detailed dimensioned drawings to communicate their designs in detail to a third party.

The assessment of the manufacturing section was very generous in some centres, highlighting an area that requires attention. Standards in some centres were excellent but outcomes in some centres lacked accuracy and manufacturing skills yet had been awarded high marks. Attention to detail and quality of finish are particular areas to focus on.

Depth and quality of evaluations varied significantly across centres. Many centres should reconsider the time allocated to this section in light of the available marks. A quality design specification with well-defined qualitative and quantitative criteria enabled candidates to produce more meaningful final summative evaluations. More end-user testing should be encouraged and to communicate further developments required.
Our digital resources website has many blended learning lessons and knowledge organisers, amongst other things: WJEC Educational Resources Website You can filter to help find what you want. Attendance at the Innovation Awards which includes free teacher CPD and student seminars in September and October in Cardiff and Bangor is also encouraged.

Areas for improvement	**Classroom resources**	**Brief description of resource**
Reading the question carefully particularly in AO3 Analyse and Evaluate high tariff questions and providing an answer that fully reflects the question.	WJEC Educational Resources Website	Knowledge organisers and focus area specific blended learning resources.
Avoid presenting stock answers/prepared answers about particular topics as these do not answer extended questions fully.	Question Bank	Question Bank is a free tool which allows you to create practice question papers from thousands of WJEC past paper questions. Find the questions you need, add them to your paper and export your paper with accompanying mark scheme and examiner's comments as a PDF ready to use in the classroom.
Many candidates produce repetitive answers that duplicate the same point multiple time. This does not gain any additional credit.	Exam Walk Throughs	Aimed at learners, these materials offer practical hints and tips on how to effectively approach questions in examination papers and preparing for NEA.

DESIGN & TECHNOLOGY

GCE

Summer 2024

AS - UNIT 1 - PRODUCT DESIGN

Overview of the Unit

The 2024 AS Level Product Design paper closely followed the established format for the current qualification and tested of a wide range of topics across the specification. The usual differentiation allowed low mark tariff questions to be highly accessible, and more challenging and demanding questions with higher tariffs that require candidates to demonstrate their knowledge and understanding in extended responses. The increasing number of resources include a number of past papers and mark schemes, OER and question banks allow all candidates to become familiar with the format of the paper.

Despite being accessible to most candidates, it was evident that some candidates had not prepared thoroughly for the examination and did not have the in-depth knowledge that might be expected. Some responses lacked technical knowledge and understanding that would have enabled them to access marks expected at AS level.

Compared to previous years, there was an increase in questions 'not attempted' or only 'partially attempted'. A significant number of candidates achieved a total mark below 40 and, in some cases well below, with very few achieving total marks above 65.

Comments on individual questions/sections

Q.1 **(a)** A considerable number of candidates failed to describe what a jig was, with many confusing it with a knock down fitting.

(b) Many candidates could not design a jig that would manufacture a specific part of the clothing rail. Many candidates drew a mould or drew a close up of a specific part of the clothing rail. Some candidates wrote detailed annotation but very simple, or unclear, sketches.

Q.2 **(a)** Most candidates answered this clearly, however some candidates did confuse the term 'alloy' with 'composite'.

(b) This was generally well answered. Some candidates did not address the benefits to both the manufacturer and consumer. A few candidates said a benefit was the aluminium alloy was 'cheap' which is not correct and was not credited.

Q.3 **(i)** There were some good responses to this question. Some candidates lost marks as they identified an ergonomic element but did not describe the link to the user. For example, they identified the texture in the paving slabs but did not say this could be to aid partially sighted people to identify where to cross.

(ii) This was answered very well overall. The majority of candidates mentioned the height of the unit being suitable for all users and age groups. Many mentioned the rotating cone under the unit that aids visually impaired or blind users to cross the road. A few described the use of the red and green symbols and that they are universally understood to stop a language barrier getting in the way of using the crossing.

Q.4 There were mixed responses to this question. Some candidates wrote well rounded responses and addressed all parts of the environmental footprint including sourcing the materials, producing the packaging, recycling/reusing materials and the impact on the planet/nature. However, some candidates gave basic responses on only certain aspects of the environmental footprint of the products which restricted their mark; this seemed to highlight a lack of understanding of the materials used for the packaging and how they could be made and disposed of. Some candidates rewrote information given in the stem of the question which did not gain any credit.

Q.5 Overall, this question was answered to a disappointing standard. Many candidates did not follow the command word of "evaluate" and simply described what the iterative process was. Many failed to relate their answer to the question and wrote irrelevant points. However, some candidates discussed the importance of creativity and the iterative process and also gave examples of products and designers to back up their points. Candidates must understand that the extended answers are marked as a whole and put into the appropriate band – they must show the ability to analyse a topic and show in-depth knowledge.

The quality of written communication was marked in this question and some candidates did not use capital letters for brand names or names of designers they referred to. A small minority used a bullet pointed list which prevented them from accessing higher mark boundaries as the question asked them to evaluate.

Q.6 **(a)(i)** There were a variety of designs in response to the question. Some showed impressive levels of innovation, but some were very basic and lacked any unique features. Some candidates did not follow the specification and missed out key features in their design. Candidates are encouraged to use the specification list as a checklist to ensure they include all features.

(ii) Some candidates drew enlarged views, and some showed a disassembled view to explain the construction details. However, many lacked detail and included basic annotation to explain how it may be assembled, preventing higher marks being awarded.

(i) Most candidates completed the dimensions appropriately. A minority did not read the specification carefully and did not follow the seat height of 300mm.

(ii) All candidates used simple sketches but some lacked annotation. The quality of sketching of some candidates was impressive but some were very basic and lacked quality. Candidates need to ensure this skill is practised throughout the course to ensure they can communicate design ideas clearly in this question.

(b) This was answered poorly. Some candidates seemed to describe what a CNC machine was whilst others gave irrelevant responses. The candidates that understood the question gave clear answers regarding the set-up costs, training costs, consideration of material size/thickness and tooling.

(c) This question was answered well overall. The majority of candidates identified an appropriate finish and gave clear justification of its use on the stool. Some candidates described sanding the stool as a finish, but this is part of the preparation process before applying a finish.

(d) There were some very good responses to this question. Most candidates showed an understanding of the question, but some responses lacked detail. Higher mark answers included responses that referred to the advantages and disadvantages of the decision – candidates must ensure they consider both sides of the topic for any question that asks them to "analyse" or "evaluate". Level 4 answers included reference to benefits for the local economy, lower cost of shipping, lower final costs, less shipping emissions, higher quality final product due to better quality control, better working conditions, lack of materials in the UK and higher end selling price to consumers.

(e) (i) There were varied responses to this question. A large number of candidates seemed to describe the benefit of extending the range of stools to an adult market; this wasn't the focus of the question. Many candidates did not refer to "user centred designing" and some didn't seem to understand the term. When candidates focussed on the key words in the question, they showed an understanding of allowing the designer to meet the needs and wants of the adults, ensuring they use ergonomics and anthropometrics to make a stool that fits them and testing the product regularly on users to get constant feedback.

(ii) This was answered poorly overall. Many candidates did not seem to be able to name specific designing strategies. Some could name them but not describe how they could be used by a designer. Many candidates scored no marks on this answer as they described research strategies, such as surveys or looking at existing products. A minority of candidates identified inversion, lateral thinking, analogy and morphological analysis and gave clear descriptions of how they could be used.

DESIGN & TECHNOLOGY

GCE

Summer 2024

A2 - UNIT 3 - PRODUCT DESIGN

Overview of the Unit

The unit 3 examination includes a mix of structured and extended writing questions. It aims to assess learners' knowledge and understanding of technical principles, designing and making principles along with their ability to analyse and evaluate design decisions and wider issues in design and technology. The examination covers assessment objectives:

AO3
Analyse and evaluate:

- Design decisions and outcomes, including for prototypes made by themselves and others
- Wider issues in design and technology

AO4
Demonstrate and apply knowledge and understanding of:

- Technical principles
- Design and making principles

Overall, most candidates effectively managed their time during the examination and allocated sufficient time to all questions. While some occasionally skipped a question or provided brief responses, this seemed to stem from a lack of knowledge rather than poor time management. It was evident that some topics, such as smart materials, die casting, and the Six Sigma management process, lacked the depth of understanding required at the A-Level.

Comments on individual questions/sections

Q.1 This question was answered well; many candidates were able to identify and discuss the health and safety requirements needed when working under COSHH regulations, even if they answered part (a)(i) incorrectly. Part (b) was also very accessible, with most responses addressing the transparent property and its aesthetic benefits. Where the property of “strong” was given, this needed to be explained further to gain the 2 marks available.

Q.2 The question on the paper that many candidates found most accessible demonstrated a clear understanding of CAD simulation and global manufacturing. Answers clearly matched the requirements of the mark scheme and where candidates went onto give explanations why, the higher marks were achieved.

Q.3 This question was generally poorly answered. A common mistake candidates made was identifying photochromic materials for the aircraft window and smart memory alloys for the aluminium can. It was evident that candidates had a limited understanding of various smart materials. However, when responses correctly described the properties, some credit was given, despite the main smart material identified being incorrect.

Q.4 Overall, the responses to this question were well-developed, with many candidates effectively using sketches to support their explanations. Most responses detailed the need to layer material with glue and mentioned the use of a mould or jig. However, only a few referenced the necessity of a space for the electronic wire, and those who did received top marks. The majority of responses for part (b) included the requirement to use different grades of sanding before applying the beeswax finish.

Q.5 Both parts (a) and (b) of this question were answered reasonably well, with many candidates providing detailed explanations for why die casting is an appropriate manufacturing process, including suitable materials and their properties. The most commonly cited materials were aluminium and stainless steel. However, candidates who identified steel alone needed to be more specific. In contrast, part (c) of the question produced varied responses. The majority resembled answers typical of pewter casting methods rather than fully explaining the die casting process, resulting in higher band marks not being attainable.

Q.6 Candidates tackled this question reasonably well, carefully analysing the images provided in the question stem. Many responses discussed the ergonomics and safety aspects of razor development, as well as the performance improvements related to the number of blades. However, only a minority of responses linked the removable heads to environmental considerations, and few mentioned the disposable nature of razors from the 1990s.

Q.7 Candidates addressed the environmental and sustainability issues in this question adequately. Most responses highlighted the comparison between single-use and reusability, emphasising the benefits of the latter. Many also discussed the disposal of cups after use, though fewer connected this to the environmental impact of producing the initial materials. Responses in the top band demonstrated clear organisation in their discussions, presenting both advantages and drawbacks of the materials used in the cups.

Q.8 Overall, this question was answered adequately. The main issue was that candidates generally explained the benefits and drawbacks of mass production without linking them to the historical development of the car industry. This broad approach prevented many from achieving higher marks. Candidates who clearly explained how mass production has impacted social and economic benefits over the years received higher band marks. Additionally, the few responses that outlined the benefits of mass production for other industries also earned higher marks.

Q.9 On average, candidates received around half marks for this question. The main concern was the lack of a coherent and structured discussion on how Memphis challenged traditional design approaches, which prevented higher band marks from being awarded. Many responses effectively analysed and referenced the images in the question stem, demonstrating that candidates are beginning to use visual aids to support their answers. Responses that merely identified bold colours and shapes received mid-level marks. It is good to see that candidates are starting to use the images in the question paper to aid their responses.

Q.10 This question was poorly answered. There was a noticeable decline in the number of candidates attempting this AO3 analysis question from the 2023 examination series. Many responses only attempted to analyse generic management methods within the manufacturing industry. Few candidates were able to identify the stages: Define, Measure, Analyse, Improve, and Control. Where these stages were identified, candidates clearly structured their responses by explaining each stage. Few candidates also linked the benefits to both employees and employers, as required by the question, which allowed for higher marks.

It is important for centres to remember that full coverage of the specification is necessary. While WJEC materials are important for preparing candidates, centres should not solely rely on these for revision and must also use other methods, including centre-developed resources.

DESIGN & TECHNOLOGY

GCE

Summer 2024

AS – UNIT 1 – ENGINEERING DESIGN

Overview of the Unit

There remains a low volume cohort for this qualification. Overall, the performance by candidates was disappointing and evidence showed a lack of exam preparation. Knowledge and understanding of broader technical issues and concepts were evident in many cases, but specific knowledge of materials, components, mechanisms, and systems appeared to be underdeveloped and candidates limited the marks accessible as a result. It was quite common for candidates to not take the time to read the questions carefully and consequently produced answers that were not directly relevant. This often resulted in no additional marks.

Candidates should be reminded to consider the total number of marks available for each question and to allocate a proportional amount of time accordingly. The marks for Question 6 are worth 50% of the total for the paper and this section should take approximately fifty to sixty minutes to complete.

Centres are strongly encouraged to direct candidates to the Digital Resources Section of the WJEC Website where an examination walk through can be used to help them prepare for answering the type of questions that might be anticipated. There is also the Question Bank resource, and OERs for previous years which will help.

Comments on individual questions/sections

Q.1 **(a)** Many candidates did not appear to understand the advantages of using CFRP when making large single part products and as a result responses were often limited. Answers tended to be vague and unqualified.

(b) Most candidates were able to identify two products that have been improved by using CFRP.

Q.2 **(a)** Most candidates had a general understanding of forces, but answers often lacked the technical terminology that is required to achieve full marks.

(b) The majority of candidates were able to explain how impact compressive forces can be partly absorbed by hydraulic shock absorbers and pneumatic tyres. Responses to this question were detailed and well developed in many cases.

(c) Most candidates understood aerodynamics and were able to answer this question easily. High marks were awarded in many cases.

Q.3 **(a)** Understanding of the advantages of additive manufacturing was limited. Reasons given tended to be low level responses and lacked detail.

(b) Higher level responses demonstrated a good understanding of the financial advantages of iterative prototyping during product development. Candidates that were able to explain how this impacts on the lead time were awarded higher marks.

Q.4 Most candidates were aware of the way in which anthropometric factors impact on products. Those that achieved higher marks were able to discuss additional less obvious ergonomic features such as touch sensitive volume control and voice recognition. Marks were given in this section for the quality of communication and some candidates were able to use grammar, punctuation, and spelling at a high level. When answering the question some candidates did not plan their work and frequently reiterated points that had already been given credit in an earlier part of the answer.

Q.5 **(a)** In general candidates did not appreciate the difference between ball and roller bearings. They were able to score low level marks though making generic assumptions. Very few achieved high level marks.

(b) Knowledge of suitable materials used to produce plain bearings was very limited with only a minority able to suggest an appropriate solution. Where an appropriate material had been selected a justified technical reason was frequently not provided.

Q.6 **(a)** Many candidates relied upon and reiterated information that had already been provided in the question when developing specification points and consequently were unable to access higher marks.

(b) The quality of responses to this section appeared to depend upon prior preparation rather than ability. In many cases candidates were unable to draw accurate circuit diagrams and did not know how to use standardised symbols to represent electronic components.

(c) Candidates that were able to draw detailed mechanical systems using conventional symbols were able to access higher marks. Those that provided technical annotation which identified components were given full credit. A few candidates provided justification for the proposed use of appropriately selected materials.

(d) The ability to sketch suitable enclosures for electronic components was limited and only a few candidates achieved at the higher levels. This is clearly an area which should be a focus for development when preparing candidates in subsequent years.

(e) In answering this question candidates were aware that the system needed an over-ride feature for safe exit in the event of an emergency. A wide variety of alternative responses were given credit. Justification for proposed improvements was not always evident and this restricted some candidates to lower-level marks.

DESIGN & TECHNOLOGY

GCE

Summer 2024

A2 – UNIT 3 – ENGINEERING DEIGN

Overview of the Unit

Again, a limited number of centres continue to provide entry for this qualification. The cohort for this qualification continues to be small yet focusses on the state of the art emerging technology available within the subject. Retention rates from AS to A2 are around 50%. The 2024 paper was well received with 100% attempt rate throughout, with the exception of question 10, which was high tariff and challenging. The quality of responses varied, and it is important to note that candidates are expected to cover the whole specification in detail in order to fully access the paper. Some responses lacked the in-depth technical knowledge and understanding that is expected at A level.

With such small numbers, it is difficult to establish statistical patterns, as outcomes generally depend on the centre and quality of the candidates.

Comments on individual questions/sections

Q.1 This was the most accessible question in the paper with the mean mark above half marks.

(a) Candidates were able to generate specification points for each area listed for the food processor. Some candidates lacked details in their answer to further explain the impact of their response. In order to gain marks for a more detailed response candidates should ensure they describe the impact of their specification point within the context of the question.

Q.2 This question was less accessible with a mean mark of 4.1. Responses in this question lacked the in-depth knowledge and understanding at this level.

(a)(i) Responses to this question were mixed. Some candidates were able to identify and describe both push and pull factors relating to the pet door. However, too many candidates' responses lacked detail and or an understanding of push and pull factors which is disappointing at this level.

(ii) Most candidates were able to identify and describe an innovative feature of the pet door, however responses did not look at a range of features or did not explain how the feature was innovative compared to a traditional pet door. Candidates should be reminded to use the command words as a starting point, so they are able to structure their response.

(b) Candidates were able to recall the meaning of a patent with an explanation of its features. Candidates did not relate this information to the pet door design and how the designer could use a patent to protect its features.

Q.3 This question was the least accessible question on the paper. Although all candidates attempted this question the overall quality of the responses was poor at this level.

(a)(i) This question focused on mechanical systems. Most candidates were able to state how mechanical advantage could be achieved in this system but were unable to go into further detail to explain how the storage device system pictured worked. Candidates are reminded to carefully study the image and refer to system shown.

(ii) Some candidates were able to identify a suitable material and make reference to its properties, and how these properties would enable the rope to work effectively in the system. Some candidates did not score marks in this question because they identified an unsuitable material or only described the properties of a material. Candidates need to name a suitable material in order to gain any marks.

(b) The responses to this question were largely simplistic and basic. Many candidates were able to identify a suitable process (Dip coating) however most answers lacked clear and developed detail to clearly explain this process. Candidates who answered this question well had knowledge of the stages, equipment, and technical details of the process.

Q.4 This question had a low facility factor indicating that although all candidates attempted the question it was not accessible.

(a) Responses to this question were limited. Candidates were able to provide a simple explanation of a feasibility study but did not include greater detail that related to the context of the question. Candidates should remember that they need to apply their knowledge and understanding of principles to the question and not just answer the question using recall.

(b) Most candidates struggled to answer this question. Responses lacked more detailed information that related to scales of production and manufacturing processes. Candidates should be able to identify and suitable scale of production after reading the question and give reasons for this choice along with suitable manufacturing processes that may be used. Answers had to include manufacturing processes AND scale of production to access 8 marks.

Q.5 This question focused on the principles of electronics and the candidates understanding a circuits and components. All candidates attempted this question; however, the mean mark was 3.4 with candidates preforming poorly in this question.

(i) This question required candidates to study a stripboard circuit and reverse engineer the working prototype into a circuit diagram. Responses to this question were mixed with some candidates unable to produce a suitable circuit diagram. At this level candidates should have knowledge of a range of components and a good understanding of how to construct a basic circuit using the correct conventions.

(ii) Candidates were unable to use the correct terminology and technical knowledge to describe how the transistor circuit would work. Candidates should have technical knowledge of components and how they function in a range of circuits at this level.

Q.6 This question was the 3rd most accessible in the paper. Again, all candidates attempted this question.

(i) Generally, candidates performed well in this question. Candidates were able to describe technologies used in speed signs that have enabled them to become smart. This could likely be due to experiences these in their day to day lives.

(ii) Some responses to this question were positive with candidates explaining suitable factors that would influence the signs fitness for purpose. Candidates should make reference to a factor that would influence the signs fitness for purpose as well as the impact this factor would have.

Q.7 This question was attempted by all candidates and was measured to be the 2nd most accessible overall.

(i) Most candidates were able to list 2 benefits of using CAD to analyse forces. Some candidates were able to describe their response in detail explaining the impact that each benefit would have. It is important that answers included responses that were linked to the question and not generic benefits that only related to CAD.

(ii) Responses to this question showed that candidates were able to understand the image provided and describe what feedback would be given to the designer. Candidates needed to give a detailed response and describe what each colour represented along with whether changes would be required following the analysis of this information.

(iii) This question required candidates to use annotated notes and sketches to make modifications to the CAD model. A range of responses were produced by candidates. Responses that were awarded the top band for this question included a well-drawn and labelled sketch with areas of modification clearly labelled as well as notes to explain the impact of their modifications.

Q.8 This question was attempted by all candidates. The mean score of this question was low along with the facility factor indicating that candidates found parts of the question less accessible.

(a) Most candidates were able to describe a suitable quality control check that would be completed during the manufacturing process. Some responses lacked detail to describe the impact or reason behind the quality control check. Candidates were not able to explain appropriate quality assurance strategies for mass production. Both QC and QA should be covered within the specification.

(b) This question was answered poorly by candidates. Candidates lacked the knowledge of critical path analysis and how a manufacturer uses this technique during production. There is opportunity for this theory to be covered during the completed of Unit 4 where candidates could product a critical path analysis for the product they plan to produce allowing them a deeper understanding of this project management technique.

Q.9 This question formed part of A03 within Unit 3. All candidates attempted this question with varied responses. The SD was the second largest indicating that candidate performance for this question was not consistent.
Candidates who performed well in this question were able to take their knowledge of the work of Jony Ive and link it to the quote. Candidates made links between features of products that Jony Ive has designed and their impact on the user and target market, as well as how Jony Ive users target market feedback in the iterative design process.

Q.10 All but 1 candidate attempted this question. This question formed the second part of A03 within Unit 3. The responses to this question were disappointing at this level. Candidates did not provide enough detail or evaluation of how product life cycle impacts the manufacturers' ability, or need, to regularly revitalised products. Some candidates discussed Life Cycle Analysis instead of Product Life Cycle. The quality of written communication was suitable at this level.

Summary of key points

- Candidates need to cover all topics within the GCE Engineering Design specification in detail.
- Candidates should read the questions carefully to ensure that their response covers the context of the question, they should re-read their responses to ensure that they have linked responses back to the question in the examination.
- Candidates may need guidance on how to construct and structure responses based on the command words in each question.
- It is important that candidates are taught how to apply their knowledge and understanding of both technical principles and design and making principles in a variety of contexts.
- The overall quality of notes and sketches should be improved at this level in order to achieve higher marks in questions that require technical illustration.

DESIGN & TECHNOLOGY

GCE

Summer 2024

AS – UNIT 1 – FASHION & TEXTILES

Overview of the Unit

The number of entries for this qualification is traditionally low with the majority being female. With no evidence of any particular question causing concern, the paper was considered accessible to most candidates. In many cases, it was evident that candidates had not prepared thoroughly for the examination and in the depth that might be expected for A Level. Many lacked the technical knowledge and understanding that would have enabled them to respond at a higher level and access the higher tariff marks. This year's cohort were much weaker and seemed less well prepared than in any previous series, which is disappointing as there are now even more resources available to support examination preparation including Exam Walk Through, Question Bank and OERs.

General weaknesses in candidate performance include:

- Failure to develop a detailed response in order to gain the higher marks.
- Weakness in specific textile related knowledge in many areas.
- Well-planned and structured responses score well. These responses contain clear, and specific details relating to the question. A number of candidates' responses require more structure and planning in order to organise information clearly and coherently and attain higher marks.
- Repeating the stem of the question but failing to demonstrate a specific body of knowledge.
- Candidates should be advised to read the question carefully in order to ensure that all elements are understood and are also included in their response.
- Centres should continue to advise candidates to use the mark allocation indicated at the end of each question to guide the depth of response required and manage time effectively.
- Writing with clarity and clear meaning; handwriting was not always legible.
- Allocate time appropriately, e.g. Q6 is worth 50% of the marks, this question should take 50-55 mins of the candidate's time.

Comments on individual questions/sections

Q.1 The first question was attempted by all candidates and appeared to be fairly accessible.
Most candidates scored reasonably well on this question.

(a) All candidates were able to explain potential risks in relation to a named item but not all descriptions were detailed enough to gain full marks. Candidates must make sure that they are expanding on their answers at all times.

(b) Only a few candidates were able to answer this question effectively. Most candidates did not seem to know what a five-step risk assessment was. These candidates simply wrote a list of potential hazards which are found in a classroom. This answer was not acceptable and did not gain any marks. Pupils had to make reference to the five-step risk assessment to gain full marks.

Q.2 All candidates attempted this question.

(a) Most candidates showed a clear understanding of the issues associated with the question. Terminology and technical language were good on the whole. Those candidates who were awarded the highest marks included full and detailed explanations with relevant examples.

Q.3 All candidates attempted this question, but answers were disappointing on the whole.

(a) This question was not answered well. The majority of candidates could not name types of zips and were not able to explain the suitability of the named zip in relation to a textile's product. This was surprising as some candidates will have used or considered zips during the NEA.

(b) All candidates showed knowledge of bought-in-components and were able to give advantages to the manufacturer.

Q.4 All candidates attempted this question.

(a) Most candidates were able to describe properties of polyester in relation to the toiletry bag. Some descriptions were brief. Candidates must make sure that they are expanding on their answers at all times.

(b) Candidates were able to explain why the drawstring method for opening and closing the bag would be suitable.

(c) Candidates struggled with the question. Most were not able to fully explain how you would construct the drawstring feature. This question required candidates to sketch and explain the process in a logical order. Many candidates skipped important steps showing a lack of understanding on how the drawstring feature would be constructed.

Q.5 All candidates attempted this question.

(a) Candidates seemed to have little understanding of cotton jersey. Most candidates were not able to explain the characteristics of jersey in relation to the decorative features.

(b) It was clear to see that many candidates had not experienced the use of a laser cutter and so were unable to answer this question sufficiently. It is important for candidates to be shown all techniques - this can be in the form of video clips if specific equipment is not available.

(c) Most candidates were able to describe an alternative method of applying the letters to the pyjama top.

Q.6 All candidates attempted this question. This question scored the least marks overall. Candidates failed to meet many requirements of the design question. It is felt that not enough time was spent on this question in general. Allocate time appropriately, e.g. Q6 is worth 50% of the marks, this question should take 50-55 mins of the candidate's time.

(a) Candidates showed basic knowledge of e-textiles overall. Most were able to describe the function of the components in a simplistic way.

(b) Without the basic knowledge of e-textiles, candidates were not able to gain the higher marks in this question.

(c) Marks were awarded for the content of the answer and the quality of written communication in this question. This was an 8 mark question which was answered poorly overall. Limited understanding and application of knowledge and understanding of the use of reflective materials and application of e-textiles in safety products. Candidates only addressed reflective technology in their answers and did not incorporate e-textiles. Pupils are reminded to read the question fully. Limited examples were given. Most candidates only made reference to the products in the pictures that were given in the question. Quality of writing and communication was poor.

(d) Candidates are reminded to read the question carefully. Look at where marks are awarded in the question. This question was worth 24 marks in total. The quality of the outcomes produced were generally disappointing.

(i) Basic sketches were given, lacking in detail with simple reasoning.

(ii) Few designs were original, innovative and imaginative. The majority of designs lacked imagination.

(ii) Candidates were able to name appropriate materials and were able to justify their choices.

(iv) Only one candidate incorporated e-textiles into their design. All other candidates chose reflective technology, mainly in the form of reflective strips/panels. Ideas lacked imagination and creativity.

(v) Candidates were able to include a style detail in their designs, but some did not think about how the style detail could enhance the function of the product.

(vi) Candidates were able to answer this part of the question reasonably well. They gave suitable decorative techniques which enhanced the aesthetics of the product.

Summary of key points

- Candidates need to be taught the full range of topics as listed in the full course specification, systematically. There were very obvious weaknesses in basic technical knowledge.
- Candidates need to understand command words, found at the beginning of a question and what level or type of response is expected. 'Explain' for example requires a fact and elaboration of the fact. It is not a list of different points.
- Candidates need regular practice at answering these types of challenging and demanding questions.
- It is critically important that candidates consider the whole question before attempting an answer. Too often key elements are missed.
- Candidates need to be familiar with examination style questions and how to answer questions in a way that will enable them to maximise on the marks available.

There are useful resources available when analysing candidate performance in this unit, particularly the Item Level Data which is centre specific and allows a full statistical breakdown of candidate performance question by question. Centres can also compare their performance against ALL centres to identify strengths and weaknesses in delivery of this specification. The Online Examination Review (OER) is also available via the WJEC website. This e-resource contains marked exemplar responses from scripts, where examiners marks are available, together with marking criteria and reasons why marks have been awarded and where responses lack the depth to access further marks. This is a powerful teaching tool for classroom activity with candidates. Useful teaching resources to support learners in the classroom are also available via the WJEC website in the resource section. Here you will find knowledge organisers and interactive teaching resources.

DESIGN & TECHNOLOGY

GCE

Summer 2024

A2 – UNIT 3 – FASHION & TEXTILES

Overview of the Unit

The structure, style and demand paper for the GCE A Level Fashion and Textiles 2024 followed the established format from previous examination series. Questions were drawn from a broad range of topics listed in the full course specification. Questions varied but were set to effectively test candidates' ability to demonstrate and apply knowledge, understanding and skills acquired over the two-year period of study at GCE level. With a 100% attempt rate for all questions the paper was considered very accessible to candidates. There were no obvious questions causing concern.
There were many examples of excellent responses evident however there was a noticeable increase in low level responses with some candidates seemingly less well prepared and lacking in subject specific technical knowledge expected at this level. Detailed knowledge and understanding of fibres and fabrics was very weak which is consistent with past series but has yet to be addressed by most centres.
All questions are set in a context which either includes a picture of a product or, an outline scenario is stated. Candidates should be encouraged to carefully consider the context of the question before attempting an answer. This format is intended to support candidates in applying their knowledge and understanding to the set context.

Comments on individual questions/sections

Q.1 With a mean mark of 4.8 out of 8 this question was considered one of the most accessible on the paper.

(a) (b) There were no issues with these part questions.
(c) Most candidates could discuss the advantages of using a brushed cotton for the duvet set but less so for disadvantages. Responses that demonstrate detailed knowledge and understanding such as subject to pilling or prone to shrinkage were not seen.

Q.2 The mean mark for this question was 3.9 out of 8.

(a) Most candidates had some understanding of Julien McDonald's work for example use of diamantes and sequins, but detailed knowledge and understanding was not evident.
(b) Most candidates could not explain how a satin weave is constructed. Responses were generally poor. This question typifies a pattern in recent years of poor subject specific technical knowledge.

Q.3 With a mean mark of 7.2 out of 12 this question was also considered one of the most accessible on the paper.

(a) (b) There were no issues with these part questions.
(c) Knowledge of influencers was quite strong for most candidates but far less so for trendsetters. As there is a distinct difference between the two, few candidates gained full marks for this question.

Q.4 This was the least accessible question on the paper with a mean mark of 3.6 out of 12.

(a) Subject specific technical knowledge is generally considered weak for all candidates so it was not surprising that most candidates could not accurately sketch a cross section of hemp fibre to explain how it can absorb up to 20% water vapour without feeling damp. A key point is that it has multiple air pockets which absorb moisture which is quite different from fibres such as cotton.

(b) Quite often candidates do not read questions carefully meaning the focus of their response is inaccurate. This question was typical of that approach. Hemp has specific qualities that make it significantly less harmful to the environment than other cellulosic fibres. These were generally not discussed but cotton for example was. Full marks were rarely awarded.

(c) Similarly, Hemp's additional properties such as thermo-regulating properties or it being anti-bacterial for example were generally not discussed. Yet again, weaknesses in subject specific technical meant most candidates could not answer this question successfully.

Q.5 This was the second least accessible question on the paper with a mean mark of 2.4 out of 8.

(a) Yet again subject specific technical knowledge was very weak and limited consequently most candidates could not answer this question. Detailed understanding of the structure of a wool fibre was simply not known.

(b) Gaps in technical knowledge also meant most candidates could not answer this question. Chlorine is the shrink resistant finish most manufacturers use on wool. This destroys the scales on wool fibres which prevents them locking together in a wash cycle therefore they cannot shrink.

Q.6 The mean mark for this question was 4.6 out of 8.

(a) The chain mail glove would be used by workers operating cutting machinery in the fashion and textiles industry. Few understood that. Most candidates missed this point entirely and referred to workers operating chain saws for example outside the textile industry. Whilst technically correct and some marks were awarded, closer scrutiny of questions is required as question context, unless stated otherwise always relate to fashion and textiles!

(b) No issues with this part question.

Q.7 The mean mark for this question was 5.5 out of 12. Technical knowledge yet again was considered weak.

(a) Responses to this part question were disappointing. Detailed technical understanding relating to garment construction was not evident in most responses. This question has a direct link to the qualities candidates should apply when constructing their products as part of the NEA. It is surprising that responses overall were weak.

(b) Whilst there was evidence of exceptionally good responses some candidates did not have the technical knowledge related to the use of a facing or lining to answer this question.

(c) Most candidates missed the main point of this question and discussed the work of designer Yves St. Laurent given as an example in the question rather than designers in general influencing mainstream fashion. Yet again candidates need reminding to consider the context more carefully before attempting a response.

Q.8 The mean mark for this question was 6.5 out of 12.

(a) Some candidates did not know what a feasibility study was and therefore had difficulty answering this part question.

(b) There were no issues with this part question. Anthropometrics and ergonomics were clearly familiar terms for most candidates.

Q.9 The mean mark for this question was 3.4 out of 8. The first of the AO3 questions.
Reference to the designer Coco Chanel was included in the question stem to establish a context. The question was not about the designer but was, in fact about the little black dress (LBD) as a classic for women in modern society. Candidates who read and carefully considered the question scored high marks whilst others who discussed the designer did not. As analyse was the command word here, evidence of reasoning must be included in the response. Absence of reasoning did impact the marks awarded to some candidates.

Q.10 The mean mark for this question was 7.2 out of 12.
Candidates' knowledge and understanding of over-arching principles related to fashion and textiles is significantly better than subject specific technical knowledge which explains why performance in this question is one of the strongest on the paper. Most candidate demonstrated a good understanding of the context for this question. As evaluate was the comment word for this question, there must be evidence of appraisal in the response. Generally, most candidates addressed this requirement. There were no issues with the quality of written communication which was assessed in this question.

This report should be read alongside the 2024 examination paper and mark scheme. Centres are reminded of the item level data available on the WJEC secure website when they reflect on their candidates' performance. Item level data sets out the candidates' performance in this year's paper at a national level as well as centre/individual candidate performance.

DESIGN & TEXTILES

GCE

Summer 2024

AS – UNIT 2 - NEA

Overview of the Unit

It was once again rewarding to be able to witness student creativity and innovation being encouraged at many centres. In general, the majority of centres applied the assessment criteria consistently and fairly, but close scrutiny is required to the mark bands if high or full marks are to be awarded. Several of the shortcomings highlighted in the reports from previous years were once again still evident at some centres despite WJEC releasing a range of NEAs for standardising purposes. All teachers at the centres need to be encouraged to use the WJEC resources available to them and to act on any recommendations. This report needs to be used in conjunction with the centre report to move the subject forward.

Administration for the moderation process still poses an issue for some centres. For the moderation process to run much smoother and ensure a fair and equal process for all, it is imperative that the requirements for moderation as set out in the specification and closely followed.

Comments on individual questions/sections

Identifying and investigating design possibilities

The assessment criteria clearly demands that candidates identify a broad range of problems/opportunities to clearly inform the development of possible design briefs. This was not the case in all centres. This was clearly noted in the 2023 report. Some of the research witnessed was far too general and did not contribute to the possible need focused in on. All research undertaken including designer/practitioner/company research should contribute in some way to the research focus area.
Candidates need to be encouraged to use a variety of different strategies during this section and to communicate their findings and how it could possibly influence or contribute to any future work.

Developing a design brief and specification

Once again, there was not enough evidence witnessed in 2024 to suggest that many centres had acted upon the previous recommendations. There should be clear evidence within the project showing how the design brief and design specification has been arrived at, and a thorough understanding and requirements of the task ahead.
Specifications continue to pose an issue for a number of candidates. It is often seen that candidates lack the detailed quantitative information in the early stages of development. To access the higher bands in this section, it is expected that specifications contain all the relevant details that would allow a product to be successfully developed and suit the needs of its intended use. The design specification needs to direct and inform the designer whilst developing the design. A high quality, measurable, in-depth design specification will help greatly when evaluating the product. Several centres had assessed this section too generously due to a lack of measurable and objective criteria being evident, which showed no real depth of understanding of the requirements of the product to be designed.

Generating and developing design ideas

Some candidates demonstrated a thorough use of relevant modelling and testing of ideas, driven by the design specification, which supported their decision-making and advanced their projects iteratively. Those who did this extensively gained valuable information and feedback from the target market before finalising their prototypes.

Candidates should be encouraged to develop their iterative journey as much as possible and consistently record their findings appropriately. Models, tests, and concepts could be in the form of physical models made from any suitable material or 3D CAD models. Sketchbooks should continue to be developed and used as the essential iterative working tools they are. Social, moral and sustainability issues could also be looked at here and how the designing could reflect it. Through testing and modelling, candidates gain a deeper understanding of their projects and obtain valuable development feedback from end users or clients. Several candidates would also benefit from producing more detailed dimensioned drawings to communicate their designs in detail to a third party.

Manufacturing a prototype

To achieve higher marks in this section, evidence of a logical sequence and an achievable timeline for the stages of production is essential. The evidence should communicate sufficient information to enable a third party to manufacture the product.

While some excellent making skills were observed in several centres, the standards of manufacture and application of the assessment criteria varied greatly. Some prototypes lacked accuracy and manufacturing skills yet were awarded high marks. The principal moderator's report from the past few years has emphasised, "If top mark band marks are to be awarded, the product needs to be a high-quality functioning prototype, displaying very good attention to detail with a quality finish." Some centres had awarded marks from the top mark band for this whilst the product displayed poor accuracy and a poor finish. This must be addressed in the future so that the assessment criteria are closely adhered to. The assessment of this section was very generous in some centres, highlighting an area that requires attention.

Analysing and evaluating design decisions and prototypes

Many of the summative evaluations were generally well written, addressing the design brief and specification, considering user views, and referencing end testing. However, the depth and quality of these evaluations varied significantly across centres. Many centres should reconsider the time allocated to this section in light of the available marks.

Some centres provided good examples of using video evidence for end-user testing and demonstrated how the product meets user needs throughout its lifecycle. Modifications could be thoroughly realised in annotated sketches or CAD presentations to communicate what the candidate feels needs to improve on the design. A quality design specification with well-defined qualitative and quantitative criteria enabled candidates to produce more meaningful final summative evaluations. It is essential that sufficient time is allocated to the evaluation section of the project as it carries a significant number of marks form the assessment criteria. More end-user trials and in situ testing should be encouraged to communicate the further developments required to better meet the functional and aesthetic needs of the product.

DESIGN & TECHNOLOGY

GCE

Summer 2024

A2 – UNIT 4 - NEA

Overview of the Unit

It was once again rewarding to be able to witness student creativity and innovation being encouraged at many centres. In general, the majority of centres applied the assessment criteria consistently and fairly, but close scrutiny is required to the mark bands if high or full marks are to be awarded. Several of the shortcomings highlighted in the reports from previous years were once again still evident at some centres despite WJEC releasing a range of NEAs for standardising purposes. All teachers at the centres need to be encouraged to use the WJEC resources available to them and to act on any recommendations. This report needs to be used in conjunction with the centre report to move the subject forward.

Administration for the moderation process still poses an issue for some centres. For the moderation process to run much smoother and ensure a fair and equal process for all, it is imperative that the requirements for moderation as set out in the specification and closely followed.

Comments on individual questions/sections

Identifying and investigating design possibilities

The assessment criteria clearly demands that candidates identify a broad range of problems/opportunities to clearly inform the development of possible design briefs. This was not the case in all centres. This was clearly noted in the 2023 report. Some of the research witnessed was far too general and did not contribute to the possible need focused in on. All research undertaken including designer/practitioner/company research should contribute in some way to the research focus area.
Care is needed to ensure that access to the higher mark bands is possible, because without focused research, access to the higher bands is not possible. Candidates need to be encouraged to use a variety of different strategies during this section and to communicate their findings and how it could possibly influence or contribute to any future work.

Developing a design brief and specification

Once again, there was not enough evidence witnessed in 2024 to suggest that many centres had acted upon the previous recommendations. There should be clear evidence within the project showing how the design brief and design specification has been arrived at, and a thorough understanding and requirements of the task ahead.
Specifications continue to pose an issue for a number of candidates. It is often seen that candidates lack the detailed quantitative information in the early stages of development.
A number of centres are providing initial outline specifications and then producing fully detailed specifications following further research. This was suggested as good practice last year and must be commended. This has been found to provide a more solid foundation for the development of products and can be looked at as good practice. However, to access the higher bands in this section. It is expected that specifications contain all the relevant details that would allow a product to be successfully developed and suit the needs of its intended use.

The design specification needs to direct and inform the designer whilst developing the design. A high quality, measurable, in-depth design specification will help greatly when evaluating the product. Several centres had assessed this section too generously due to a lack of measurable and objective criteria being evident, which showed no real depth of understanding of the requirements of the product to be designed.

Generating and developing design ideas

This section should be where all the research and decisions made in the specification start to come to life and follow the iterative process. Further research could also be required during this process depending on where the designing takes the candidate.

Some candidates demonstrated a thorough use of relevant modelling and testing of ideas, driven by the design specification, which supported their decision-making and advanced their projects iteratively. Those who did this extensively gained valuable information and feedback from the target market before finalising their prototypes.

Candidates should be encouraged to develop their iterative journey as much as possible and consistently record their findings appropriately. Models, tests, and concepts could be in the form of physical models made from any suitable material or 3D CAD models. Sketchbooks should continue to be developed and used as the essential iterative working tools they are. Social, moral and sustainability issues could also be looked at here and how the designing could reflect it. Through thorough testing and modelling, candidates gain a deep understanding of their projects and obtain valuable development feedback from end users or clients. Several candidates would also benefit from producing more detailed dimensioned drawings to communicate their designs in detail to a third party.

Manufacturing a prototype

To achieve higher marks in this section, evidence of a logical sequence and an achievable timeline for the stages of production is essential. The evidence should communicate sufficient information to enable a third party to manufacture the product.

While some excellent making skills were observed in several centres, the standards of manufacture and application of the assessment criteria varied greatly. Some prototypes lacked accuracy and manufacturing skills yet were awarded high marks. The principal moderator’s report from the past few years has emphasised, “If top mark band marks are to be awarded, the product needs to be a high-quality functioning prototype, displaying very good attention to detail with a quality finish.” Some centres had awarded marks from the top mark band for this whilst the product displayed poor accuracy and a poor finish. This must be addressed in the future so that the assessment criteria are closely adhered to.

It is important to note that marks cannot be awarded for models and test pieces in this section; these are rewarded in the 'generating and developing design ideas' section. The assessment of this section was very generous in some centres, highlighting an area that requires attention.

Analysing and evaluating design decisions and prototypes

Many of the summative evaluations were generally well written, addressing the design brief and specification, considering user views, and referencing end testing. However, the depth and quality of these evaluations varied significantly across centres. Many centres should reconsider the time allocated to this section in light of the available marks.

Some centres provided good examples of using video evidence for end-user testing and demonstrated how the product meets user needs throughout its lifecycle. Modifications could be thoroughly realised in annotated sketches or CAD presentations to communicate what the candidate feels needs to improve on the design. A quality design specification with well-defined qualitative and quantitative criteria enabled candidates to produce more meaningful final summative evaluations. It is essential that sufficient time is allocated to the evaluation section of the project as it carries a significant number of marks form the assessment criteria.

More end-user trials and in situ testing should be encouraged to communicate the further developments required to better meet the functional and aesthetic needs of the product.

Supporting you

Useful contacts and links

Our friendly subject team is on hand to support you between 8.30am and 5.00pm, Monday to Friday.

Tel: 029 2240 4303

Email: designandtechnology@wjec.co.uk

Qualification webpage: AS/A Level Design and Technology (wjec.co.uk)

See other useful contacts here: Useful Contacts | WJEC

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