



GCE A Level Examiners' Report

Design and Technology – Product Design
GCE A 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 component.

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	Eduqas 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.eduqas.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 Eduqas subject page
Grade boundary information	Grade boundaries are the minimum number of marks needed to achieve each grade. For linear specifications, a single grade is awarded for the subject, rather than for each component that contributes towards the overall grade. Grade boundaries are published on results day.	For unitised specifications click here: Results and Grade Boundaries and PRS (eduqas.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	Eduqas 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.edugas.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 Eduqas 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 Eduqas

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Executive Summary

Component 1

The 2024 exam covered a broad range of topics from the course specification, and it is pleasing to see that most candidates were able to understand and respond well to these questions with very high attempt rates for each question. This suggests that centres are effectively delivering a well-rounded A Level Design & Technology course. The paper offered candidates opportunities to use the examples given in the question stems to exemplify answers, but some questions also allow them to incorporate additional knowledge from other products, designers, design movements, journals, or documentaries they have encountered as part of their studies. Candidates can also draw on their experience from their Major Project to reinforce their answers, which should be encouraged.

However, questions are always presented within a specific context, and candidates should ensure their answers are relevant to this context to earn marks according to the mark scheme. Overall, accessibility across the paper was very good. Nevertheless, candidates should practise writing longer responses for questions 8, 9, and 10 to get used to building coherent answers that develop relevant points rather than repeating the same point. For these questions, it is beneficial for candidates to plan their responses before writing, with the highest-performing candidates often using a mind map or list to organise their thoughts, leading to more structured answers with minimal repetition.

When preparing for exams and practising questions, candidates should underline key words in the questions to ensure they address all parts of the question fully. It is also helpful to check the mark allocation for each question to ensure their answers are detailed enough to access the full marks available. Some candidates provided correct answers but lacked the necessary detail to achieve full marks.

Mathematics questions were generally answered well, and it is clear that candidates have prepared well to respond to these questions, boosting overall performance.

Component 2

- Centres should use the marksheets to annotate and support marks awarded. The annotation should also explain why the candidate has been awarded the mark. Not a copying of the assessment criteria.
- A range of problems must be identified by the candidate not prescribed by the centre.
- The problems could come from one in-depth context, or a range of different contexts could be considered.
- Initial specifications must be annotated and include developed, specific measurable criteria following on from research and iteration. A number of centres are providing initial outline specifications and then producing fully detailed specifications following further research. This has been found to provide a more solid foundation for the development of products.
- Continue to develop the use of sketchbooks as an iteration tool.
- The journey candidates have followed should be clear throughout the folio and sketch book.
- A number of centres are making extensive use of 3D printing, this is acceptable and can access band 5 marks if, products have had post processing finishing applied to ensure a high-quality product appearance.

- The final concepts and prototype should look and feel like a real product. Quality of finish is important. Could the product be taken to an investor?
- 'Manufacturing plans should show how the product is to be manufactured. 'Making diaries' should only be used as a tool to evaluate issues encountered in the manufacturing process.
- Evaluations should contain end testing and user trials with clear suggestions of possible modifications to the product. Use of video evidence here can be highly beneficial.

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.	Edugas Educational Resources Website	A Level D&T Notes and Worksheets.
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 AND TECHNOLOGY – PRODUCT DESIGN

GCE A level

Summer 2024

COMPONENT 1

Overview of the Component

The Eduqas A Level Product Design examination paper was very well received this year. There was a high attempt rate for all questions, showing candidates were generally well prepared and did not fail to respond. As in previous years, all questions are set in context, and candidates need to read all stems and interpret diagrams, information and study images carefully to help digest the construct. The questions that follow should be answered directly, and it would be good practice for candidates to read the question again after responding, and also read through responses to ensure they are clear, concise and complete.

Mathematical content is mandatory and is placed within a design and technology context so that candidates are not tested on pure maths. This year saw an improvement in the standard of responses to maths-based processing showing good preparation and a logical approach to tackling this type of question.

Extended responses after carrying higher tariffs, and the AO3 question in particular often provide additional challenges because of the depth, detail and skills required to articulate responses fitting the upper mark ranges. Practicing this type of question would allow improvements in the mean marks yielded. It is not the content that candidates struggle with, it is sometimes the analysis or lack of evaluating and judgements made which places their response in a lower more 'basic' level and mark range. Candidates are reminded that examination papers cannot be predictable year on year, so using a past paper as a mock paper does not necessarily mean success in future assessments. Questions from the breadth and depth of the specification will be asked, and a previous question is unlikely to be repeated in a similar form, which would make this predictable, and credit revision rather than the application of knowledge, understanding and skills.

Comments on individual questions/sections

- Q.1 (a)** Candidates responded well to this question with most being able to identify the features of the logo that would prevent a Trademark being granted, for example, the use of the three-pin plug graphic, the place names or the unsubstantiated quality claim. The best performing candidates were able to explain in detail using two examples allowing access to the full mark allocation. Some candidates relied on a simple explanation of one feature which limited the number of marks that could be given. Candidates should be reminded to check the mark allocation for each question to make sure they include sufficient detail to access all of the available marks.
- (b)** As with question 1(a), most candidates were able to provide a simple explanation of one way in which Copyright could protect the company. The highest scoring responses came from candidates who provided more than one example and with detailed explanation.

A small number of candidates incorrectly discussed copyright as a paid for IP suggesting it had to be renewed every 5 or 10 years. However, It is clear from the majority of answers to these questions that candidates are aware of various types of IP law, but for candidates to access the full four marks for each sub-question, detailed explanations were required.

- Q2. (a)** Lovely range of responses to this question with some candidates explaining how to cut and fold the copper sheet by hand and others opting to explain CAM processes such as use of fibre lasers, plasma cutters or water jet cutters. All answers are equally valid. The strongest responses came from candidates who provided identifiable steps in the related manufacturing process allowing for full allocation of marks. Some candidates focused on the design aspect choosing to explain how the product could be designed using CAD, as a result could not be awarded marks for this part of the answer. When discussing marking out, candidates should be minded to use the names of specific tools, machines or processes appropriate to the A Level standard and avoid the vague or generalist language that might be typical of a non-subject specialist.
- (b)** The mathematics question was answered well, with candidates generally gaining high marks for this part of the question. Centres are reminded that candidates need to show all calculations when attempting maths questions in order to gain the full mark allocation. There were a limited number of examples where candidates had shown just the answer for 2(b)(iv), or just one line of calculation. Marks in this question are allocated for the mathematical method as well as the final answer. Candidates can also gain marks for steps in the process of calculating the answer even if the final answer is incorrect.
- (c)** The highest marks were awarded in this question for candidates who related their answer to the specific question context which was the suitability of copper for use as a lampshade. There were a pleasing number of responses where candidates were clearly applying their material knowledge in context. Candidates did not gain marks in this question for a general list of material properties that are unrelated to the question context.
- Q.3 (a)** Most candidates could explain the mechanical and physical properties of silicone rubber in relation to the question context, baking moulds. Some candidates clearly split their answer into two sections describing one mechanical and one physical property in detail, this is an excellent exam technique. As with answers earlier in the paper, some candidates failed to gain the full mark allocation as answers were not detailed enough to gain the 4 marks with just one property.
- (b)** Candidates who knew what PTFE is, were able to access marks for this question and were able to apply their knowledge to the frying pan context of the question. Those who did not, incorrectly guessed that it was used for the handle of the pan, referring to an incorrect set of material properties. PTFE is specifically referenced in the course specification. Candidates should take care when preparing for the examination to make sure they know about the materials specifically noted in the specification.

- Q.4 (a)** Candidates generally understood what a focus group is. Some candidates provided a simple explanation of a focus group in isolation, more akin to a textbook answer, and without a link to the use of such groups when developing new products. This limited the number of marks that could be awarded. The most successful responses were from candidates who provided answers linked to the question context, showing a deeper understanding of effective use of focus groups.
- (b)** Candidates understood what was required for the mathematics calculations for this and for 4(c). However, candidates must be reminded to make sure their final answer is clear and obvious, and that the steps they have taken to reach the final answer are in a logical sequence. There were many examples where candidates demonstrated calculations dotted around the page, so the sequence was not always clear, and the final answer was not always obvious to the examiner.
- Q.5 (a)** There were a good range of answers to this question with vacuum bags, clamps and steam bending all being discussed by candidates. As with previous manufacturing process questions, the best examples provided by candidates were those presented in a logical sequence and some candidates provided detailed bullet points or numbered lists which helped define steps in the process. Candidates should take care to make use of specific tool, machine or process names and use subject specific terminology. This helps provide the rigour and demonstration of knowledge applicable to A Level standard. General and non-specific terms are difficult to credit as they do not accurately reflect the process.
- (b)** There were some excellent examples of candidates discussing the benefits of laminating timber making reference efficient use of material and increased compressive strength being the main identified features. Many candidates confused timber lamination with encapsulation using a 'laminating' machine that would be commonplace in school reprographic rooms making reference to a plastic layer surrounding the timber making the product waterproof.
- Q.6 (a)** There were some excellent examples of students communicating very good subject knowledge for this question demonstrating excellent coverage of product pricing strategies. Candidates discussed price skimming, penetration pricing and dynamic pricing in the most comprehensive examples. Some candidates limited their marks for this question by providing basic answers that covered the use of comparing prices to others on the market or calculating manufacturing costs and then adding profit margin on top which showed limited understanding of sophisticated pricing strategies.
- Q.7 (a)** Candidates have a strong understanding of the use of CAD as part of the design process. There was a proportion of candidates who answered the question by listing advantages of CAD without linking back to the question context, as a result scoring few marks. The strongest answers were from candidates who made specific reference to how CAD can help determine material choices. There were many examples of candidates referencing FEA and high-quality material rendering which scored highly for this question. Many candidates also made reference to their Major Project work which helped provide good examples on which to anchor their answer.

- (b) Most candidates were able to access marks for this question making reference to quick card and foam models or models with functional features such as rotating blades and buttons. Again, with some referencing their Major Project or industrial examples such as Dyson case studies, candidates were able to exemplify their answers that allowed them to make easy reference back to the question context.

- Q.8** Candidates were able to grasp the concept of the question and were able to link 'high build quality' with products such as hand tools. In this respect the candidates answered in detail and with some specific examples. Some candidates used additional products to add further detail to their answers which demonstrated good breadth and depth of knowledge across a range of products. Again, personal experience of using hand tools as part of the Major Project allowed students to add real depth to their answers. However, there were a sizable number of candidates that did not link high build quality with sales volumes, and this limited the number of marks that could be awarded. Candidates are again reminded to make sure they answer each part of the question. The best example answers were from candidates who produced a plan at the start of the question, this allowed candidates to carefully consider each part of the question and avoid repetition in their answer.
- Q.9** Candidates demonstrated a good basic understanding of SMAs, and used the images provided as part of the question in their answers. However, many candidates repeated the same information for each of the products provided, making the same point for each without extending or developing their points. Benefits tended to be limited to the material returning to its original shape, and disadvantages to cost of production. Many candidates did not consider the ways in which the different products were used, or how/where the products were used, e.g. inside the body versus outside. More careful analysis of the images would have allowed the students to consider potential advantages of these materials even if they did not have an excellent knowledge base to begin with. Candidates should consider the images in the question as they plan their answer to draw out different pieces of information for each and even provide their own examples based on studies they may have conducted as part of their two-year course.
- Q.10** Candidates tended to answer this question well with many writing large volumes in their answer. Most candidates were able to discuss environmental considerations, with some drawing in the 6Rs, product life cycle, planned obsolescence among others as part of their answer. As with the other high-tariff questions though, this is multi-faceted. Candidates are required to answer each part of the question in order to achieve marks in the upper-middle and top mark bands. It was unfortunate to see that many candidates did not consider the moral and ethical considerations designers need to make when designing products beyond the use of reported sweatshops. Earlier comments from this report must be echoed here, candidates must make sure they plan their extended answers before attempting the question, avoid repetition of information which leads to unnecessarily long answers and tackle each part of the question.

Summary of key points

- Candidates need to read questions carefully and prepare responses that answer all parts of the question. Sometimes parts are repeated or missed completely, which prevents access to higher mark bands.
- Candidates must check the mark allocation for each question to make sure they are adding enough detail to access all of the marks. In this series, candidates tended to provide answers that were too brief to access all of the marks in the 4 mark questions.
- Extended high-tariff questions should be carefully planned before the candidates start their answer. Where source images are provided, the candidate can and should analyse the images to pick out important features to include in their answers.
- Where useful, candidates can use examples of products, processes, methods and materials to help illustrate or exemplify responses. Use of personal experience either through the Major Project or through personally using, designing, modelling products adds depth and gravitas to answers allowing access to the higher mark bands.
- Mathematics answers should be mapped out clearly in a sequential manner with the final answer made obvious to the examiner.

DESIGN AND TECHNOLOGY – PRODUCT DESIGN

GCE A level

Summer 2024

COMPONENT 2

Overview of the Component

- Centres should use the marksheets to annotate and support marks awarded. The annotation should also explain why the candidate has been awarded the mark. Not a copying of the assessment criteria.
- A range of problems must be identified by the candidate not prescribed by the centre.
- The problems could come from one in-depth context, or a range of different contexts could be considered.
- Initial specifications must be annotated and include developed, specific measurable criteria following on from research and iteration. A number of centres are providing initial outline specifications and then producing fully detailed specifications following further research. This has been found to provide a more solid foundation for the development of products.
- Continue to develop the use of sketchbooks as an iteration tool.
- The journey candidates have followed should be clear throughout the folio and sketch book.
- A number of centres are making extensive use of 3D printing, this is acceptable and can access band 5 marks if, products have had post processing finishing applied to ensure a high-quality product appearance.
- The final concepts and prototype should look and feel like a real product. Quality of finish is important. Could the product be taken to an investor?
- 'Manufacturing plans should show how the product is to be manufactured. 'Making diaries' should only be used as a tool to evaluate issues encountered in the manufacturing process.
- Evaluations should contain end testing and user trials with clear suggestions of possible modifications to the product. Use of video evidence here can be highly beneficial.

Comments on individual questions/sections

The work moderated at A Level component 2 has on the whole been well interpreted. Moving forward, consideration to the following comments and recommendations should be made.

Administration for the moderation process still poses an issue for some centres. It should be made clear that all candidates must have a fully completed DT2 form, this should include all marks and totals, authentication by the candidate and teacher. Centres should also ensure they use the marksheets to annotate and support marks awarded. The annotation should explain why the candidate has been awarded the mark and even, why not more. Not a copying of the assessment criteria. Finally, centres are reminded to present the sample print out from IAMIS and a copy of the whole entry. When all these are completed the moderation process is found to be much smoother and ensure a fair and equal process for candidates.

Identifying and investigating design possibilities

Centres need to continue ensuring that candidates explore and analyse a range of project possibilities. These project possibilities could come under a range of contextual situations or could be under one broad context. There are still some centres directing candidates in certain briefs or context. The candidates must choose and develop their own briefs and it is not expected that whole samples show the same contexts. The aim of the iterative process is to allow the students to consider a range of problems and briefs based on analysis of client requirements, research and deconstructing existing products and problems. At A level it is also expected that candidates demonstrate a clear and logical plan or sequence for the development of their project.

Developing a Design Brief and Specification

Specifications continue to pose an issue for a number of candidates. It is seen often 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 has been found to provide a more solid foundation for the development of products. 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.

Generating and developing design ideas

Design folios again were generally well laid out with good examples of the iterative process being followed by many centres. This was evident in A3 folios and some good use of sketchbooks. Centres should continue to encourage candidates to model, develop and iterate as much as possible. These models, tests, concepts could take on the form of a physical model or a 3D CAD model. Sketch books must also continue to be developed and encouraged as an iterative working tool, marks for good use of sketch books should be rewarded in the generating and developing ideas section. At A level greater reference to the implications of the design and its impact on social, moral and sustainability issues should be evident. There is no directive as to where the design process should start, and modelling or deconstructing could be the starting point for designing.

Manufacturing a prototype

Product solutions and prototypes across many centres were appropriate however, centres should consider the timing and marks allocated to their prototype. Products should still represent a finished functioning prototype. When centres are making concept models, the products, regardless of function, must look and feel like a real product. Quality of finish is vital at this level. Could the product be taken to an investor? A number of centres are making extensive use of 3D printing, this is acceptable and can access band 5 marks if, products have had post processing finishing applied to ensure a high-quality product appearance. A number of centres were awarding band 5 marks to prototypes presented straight from the printer.

Please also note, only the finished prototype/s can have marks awarded in this section. Marks cannot be awarded for models and test pieces; these are rewarded in 'generating and developing design ideas.'

Along with the finished prototypes centres should ensure that the logical sequence and timeline completed should be in a pre-emptive context. 'Manufacturing plans should show how the product is to be manufactured. 'Making diaries' should only be used as a tool to evaluate issues encountered in the manufacturing process. Centres should also ensure that flow charts and manufacturing plans contain sufficient detail, considering the '3rd party' aspect. Moderators are seeing Gantt charts as a means of planning the manufacturing; although this is an acceptable method, a simple coloured box on a chart is meaningless unless it is reinforced with realistic detail including reference to H&S, QC and timings that reflect the true manufacturing process. The logical sequence should not be confused with the project planning noted in section A.

Analysing and evaluating design decisions and prototypes

The depth and quality of evaluations varies across centres, a consideration of the time apportioned to this should be revised by many centres when considering the marks available. In general centres need to ensure that far greater time and emphasis is placed at A level on evidencing, testing and user trials and live feedback from the proposed intended users. Good examples are of using video evidence, this has been a successfully used tool by many. Consideration here should also be made to how the product could better meet the needs of the user throughout its life cycle. Modifications should be fully realised in annotated sketches or CAD presentations.

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](#)

See other useful contacts here: [Useful Contacts | Eduqas](#)

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