GCE Design & Technology

Unit: 9DT01

Pearson Edexcel

Topic: Phone Charger

Full Portfolio

General Description The folder contained 35 pages. On the initial scan of the folder, it can be seen that all of the assessment criteria appear to be covered/attempted by the candidate. The final product looks simplistic in its outcome, analysis of this section will reveal whether this is the case.		**Centre Mark**	**Mod Mark**
Grid 1 Investigation **Evidence**	In this section we expect to see the candidate work with a client/clients or market opportunity. From their interaction pertinent issues are identified and a range of possible design opportunities are formed. The needs and wants of the client should be investigated to justify their initial design thoughts. Possible outcomes can be explored and aligned to the clients wants and needs. Slides 2-4 offer 3 possible design outcomes. The candidate clearly has a design outcome in mind, then tries to fit a problem and client to match these. In slide 3, for example the candidate states *'I plan to make a wireless charger'*, they then go on to say, *'My client for this design would be someone who struggles using a wired phone charger'*. In all cases a generic suggestion of who the client would be is suggested. Some of the detail of the annotation on these pages are heading in the right direction, with pros and cons, however, the lack depth is in keeping with a lower end assessment. Some reference to design possibilities is made, these are not justified and are based upon a rudimentary product analysis. Slide 5, introduces the client. Reading the Bio of the client a wide range problems could have been addressed giving a vast range of possible design outcomes. These possibilities are ignored, and it appears the need of the client is made to match the product the candidate has chosen to make. Slide 6. The client interview is based around the product form, with little attention given to how or where the charger would be used. There is no analysis of the clients' answers.		Level 2

Grid 2 Analysis/Research **Evidence**	In this section the research the candidates undertake should be relevant and offer information that have value to the justification of the final design. Initially it looks as though research is carried out over slides 7 -10. The product analysis, slide 7, is superficial, and lends itself to exploring the size and characteristics of phones. This is a missed opportunity by the candidate, as dimensions and weights would support design decisions made in the idea section of the portfolio. The questionnaire on slide 8, asks some basic closed questions. The outcome of this page is simplistic, in that the people questioned, and the client would prefer to charge their phone flat and are prepared to accept a wireless charger. This is low level when compared to the National A level standard. An example of how to further advance the marks in this section, the environment in where the charger would be sited could be explored, or whether the phone needs to be accessed when charging. Slide 9, is good evidence of prime research where a charger is disassembled. The conclusions are limited, dimensions are not evident, the strongest conclusion seems to be that cork is used on the base to stop scratching. Material research can be found on slide 10, this is generic and is not directly link to the product. Sizes of the motherboard is given as quite large, specific sizes would add value to this work. Further research can be found on slides, 21,22 and 24. Slide 21 is ergonomic data of a hand, how this is applied to the product development is not considered. Slide 24 has an image of an Arabic style mirror. A direct reference to this is made in the adjacent design sketch. Some low level accreditation for working iteratively can be made here.		Level 2
Grid 3 Specification **Evidence**	In this section we are expecting to see evidence of technical and measurable specification points that are a product of the focussed research undertaken. A basic, level 1, design brief is offered on slide 6. Some of the aspects of the brief have a link to the research, however, the value of this is limited by the lack of supported justification. The specification criteria evidenced on slide 11, has some relevant points that are pertinent and relevant to the phone charger, for example *'the product must indicate when it is charging or not'*. However, the justification of these points is limited, and the measurability is not specific. The specification point C8, '*large enough to hold a phone'*, could have been justified in phone measurements were explored in the research section. The measurability of this point is given as Photo evidence, to attain the highest assessment specific tests should be stated, that can be seen in the evaluation later in the folder. In this instance dimensional suitability measured with a rule, would elevate the assessment a level. A refined design brief is seen in slide 22, which elevates the work to level 2, even though the specification lacks measurability. The addition of an organiser to the charger has little justification, other than linking to the images shown on the same slide. Further research could have been seen at this point to include dimensions of items that could be stored, or the intended		Level 2

	use and environment discussed and analysed to prompt the form and function of this new addition. The candidate does evidence a second specification in slide 23, which is similar in standard to the first specification with an addition of a few comments referencing the organiser.		
Grid 4 Design ideas **Evidence**	In this section a range of design strategies that support technical annotation with client input should be seen. In this instance the candidate has a range of simplistic design sketches seen on slides 12 – 15. Thumbnail sketches seen on slide 12, offer a design strategy, the line sketches are simple without technical annotation or client input. Three of these designs are redrawn larger on the following three pages, with the addition of some surface detail. At the side of these design pages is a grid referencing the specification points, with a tick or / to indicate whether the point has been met. This has little value in terms of the assessment criterion as the justification of why the tick was awarded is not given. Little information about the chosen materials or the manufacturing process is evident. Slide 13, has a comment that the product is made of wood. This a low-level response. Justification of materials would be more in line with A level national standards. The patterns added to the designs are verbally referenced to an historic style. A more iterative approach, and a direct link to the historic and cultural assessment point, would have seen a visual reference on the page. Using this visual reference and adapting it to the product would represent an aspect of evidence needed for a mid to high outcome. (This is seen in a basic form on slide 24) The three products are compared to each other in slide 16. The comparison is of a low level, and an opportunity is missed to bring the best aspects of each design idea and using them within the development and progression of the product.		Level 1

Grid 5 Development **Evidence**	In this section we should see iterations of the design proposal move towards the final outcome. Use of research, technical knowledge and client input will be evidenced to support the changes made to the design. When the assessment criterion is applied to the work of this candidate a low grade is the best fit. The detailing on the product is limited, and the design only moved a little from the initial sketches, slide 13. CAD modelling is used to produce a 3d Printed prototype, slides 18-20, this however is a representation of a final concept rather than critically analysing the model and process to improve a final design. The same comments can be applied to the traditional card modelling on slide 25, after the addition of watch organiser. The slide titled Modelling Analysis, slide 26, is largely a description of the modelling process rather than drawing design conclusions from the model. Some supportive annotation can be found, manufacture using biscuit joints, and the inability to be flat packed is mentioned, but given little consideration on this slide. Flat packing opportunities are considered in slide 27, though the solution and argument are flawed. Some production of test joints is evidenced, as a practice, no positive conclusions or alternatives were discussed, so the value of this is limited. A range of suitable modelling processes are evidenced, clients' comments are superficial, and some discussion is given to manufacture possibilities. It just makes it into assessment band 2.		Level 2
Grid 6 Final Design **Evidence**	In this section we are looking for the candidates to provide detail to enable third party manufacture, costs and material wastage could be evidenced, with a final refinement of the design proposal. In the folder the candidate submitted a low-level response to this section. A suggestion of what the product will look like is offered on slide 24, and dimensions might be assumed from the prototype analysis on slide 20, and the step-by-step CAD guide slide 28. The lack of meaningful and fixed manufacturing dimensions limits this section to a level 1. Slide 31, in the photo manufacturing diary references originally cutting the dovetails by hand, then a dovetail jig and router was 'found'. This further evidence the lack of planning before the manufacturing stage.		Level 1

Grid 7 Review **Evidence**	In the evidence for this section would be the candidate analysing various aspects of research, and applying this, with balance to the design and the design process. Evidence from this can appear throughout the portfolio. In this instance the analytical and evaluative comments within the body of the coursework is limited. There are instances where this reflective process starts, but the evaluative annotation is simplistic and does not benefit or justify the progression of the design. There are several examples of this. Slide 16, the compare and contrast page. This format of having a distinctive page is not a requirement for the GCE. However, many candidates have used this to good effect to clarify and balance their design thinking. However, in this case the conclusions drawn are few and low level. Slide 13, the dimensions are suggested as a good fit for an I-phone, however dimensions of this device are not measured, and the implication of alternate phone sizes could have been used as a discussion point.		Level 1
Grid 8 Communication **Evidence**	To achieve the highest level of attainment in this section the candidates should: Demonstrate a perceptive selection and accomplished use of traditional/manual graphical techniques to communicate design proposals. Demonstrate a perceptive selection and accomplished use of computer-aided design (CAD) techniques to communicate design proposals. Demonstrate a perceptive selection and accomplished use of written techniques to communicate design proposals. The candidate has attempted all of the above. Some of the CAD work for manufacture has some detail. Card modelling, though used purely to represent the final design is achieved with a level of complexity and accuracy. The isometric sketch on slide 24 demonstrates an understanding of this as a formal illustrative technique. The design intent, though simple and underdeveloped is clear.		Level 2
Grid 9 Tools and equipment **Evidence**	In this section a high assessment would contain a use of materials, components, fittings and manufacturing processes that are justified in their reason of selection. The need for dimensional accuracy, and skilful use of tools should be demonstrated. It was not clear through the portfolio how the materials or processes were selected. The range of tools used was limited and repetitive. The construction of a simple laminated lasered central piece applies low level skills. Marking out and cutting dovetail joints is a more challenging process and the candidate appears to have achieved some accuracy with these. Though better and clearer photographic evidence would better support this. Photo diary slides 28-32.		Level 2

Grid 10 Quality and Accuracy **Evidence**	In this section a high assessment would see a quality working final prototype. The simplicity of the product and the quality of the manufacture lends itself to a low-level assessment for this section. The watch storage works, and meets being a prototype that is generally functioning meeting some of the specification need. Space for charging technology is incorporated and referenced into the design. There is little evidence of demonstrating an iterative approach to the manufacture, other than changing the cutting technique for the dovetail joints. Slide 31.		Level 2
Grid 11 Test and Evaluate **Evidence**	In this section it is expected to see testing against the specification points, justification for the outcome, how it performs and a client overview. It is not expected to see every specification point tested, but key points should be evidenced. Slide33, is an example where the points are commented upon, but not tested or justified. *'C10, it can easily be used in day-to-day life'* This could have been tested to see if it dimensionally fits in a bag, or a pocket, timed to see how long it takes to set up. The clients comment on slide 35 are subjective and does not give the candidate to discuss any issues raised, or to support any further development. The product life cycle is generic and lacks detail, also on slide 35.		Level 1
Total			E Grade