

Design & Technology

Advanced GCE A2 H453

Advanced Subsidiary GCE AS H053

Report on the Units

June 2009

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This report on the Examination provides information on the performance of candidates which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the syllabus content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the Examination.

OCR will not enter into any discussion or correspondence in connection with this Report.

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Any enquiries about publications should be addressed to:

OCR Publications
PO Box 5050
Annesley
NOTTINGHAM
NG15 0DL

Telephone: 0870 770 6622
Facsimile: 01223 552610
E-mail: publications@ocr.org.uk

CONTENTS

Advanced GCE Design and Technology: Product Design (H453)

Advanced Subsidiary GCE Design and Technology: Product Design (H053)

REPORT ON THE UNITS

Unit/Content	Page
Chief Examiner's Report	1
F521 Advanced Innovation Challenge	3
F522 Product Study	9
Grade Thresholds	15

Chief Examiner's Report

This was the first assessment session for the new Advanced Subsidiary GCE Design & Technology: Product Design specification.

Centres are to be congratulated in the way that they prepared their candidates for the Units, particularly the way in which they have embraced the exciting and new aspects of the specification.

The successful and popular elements of the legacy specification were reviewed, updated and improved after considerable consultation with stakeholders; primarily teachers. A very new and different type of assessment unit was introduced, F521: The Advanced Innovation Challenge, and examiners were impressed with the range and quality of work submitted.

The Advanced Innovation Challenge was introduced to many teachers at INSET. Despite a cautious reaction from some, virtually all were in agreement that this would be a very good method of assessing creative design thinking. It was obvious that teachers prepared their candidates thoroughly with the use of mini-challenges and full-blown mock examinations. It is vitally important that candidates have the opportunity to carry out at least one 6 hour session for Paper 1, followed by a 1 hour session for Paper 2 before attempting the exam for the first time.

Examination Officers are to be reminded that Paper 1 scripts must be securely retained for use by candidates when sitting Paper 2.

The essence of this Unit is innovative and creative design thinking. It is very important that candidates have the opportunity to explore and develop new and interesting ideas.

Candidates produced some outstanding work for this Unit, particularly during Session 2 where they used common and inexpensive materials to generate excellent 3D models of their design intentions.

The evaluation section was generally weak; many candidates did not give details of possible modifications or improvements to their ideas.

F522 Product Study retains many of the successful features of the legacy unit, however it includes significant changes. Many Centres presented their candidates work as E-Portfolios. Many were of an exceptionally high standard and included clear real time evidence of work being recorded as it happens, and interactive dialogue.

Fewer candidates than expected submitted work in this format. We would strongly encourage Centres to consider presenting work as E-Portfolios. The recommended OCR text book and INSET will provide guidance and support for Centres who wish to follow this approach.

Whilst the majority of Centres followed the new specification and complied with the assessment criteria, there were difficulties with the Development of Improvement Section. Tackling a section with a large mark allocation; 56 marks, proved problematic for some. Clear guidance is given in the Unit report for F522 that follows.

Presentation of work was generally of a high standard. Candidates who present paper portfolios should ensure that photographs are annotated to show real time progression of work and they must include a response to the opinion of others to comply with the requirement to provide interactive dialogue.

Report on the Units taken in June 2009

The Unit reports that follow contain very clear information on how candidates performed during this examination session and detailed guidance for Centres on how to successfully prepare candidates for assessment.

F521 Advanced Innovation Challenge

General Comments

Administration

It is important that both examination papers are dispatched to the appointed examiner as soon as the realisation paper has been completed. The Challenge assignment and reflection paper have separate labels and both should be sent in order for tracking of parcels and sorting of scripts etc. Candidates will have access to their challenge work booklets during session 2; however they are not to write in it.

There is sufficient additional space both in the challenge booklet and realisation booklet, the use of this space should be labelled carefully and additional loose sheets should generally be avoided.

All materials relating to examinations sent from OCR to centres will be dispatched to the examinations officer. It is important that colleagues check with the examinations officer that they have received all relevant and most up to date information prior to starting the challenge activity.

Examination notices must be displayed in the area where the examination is to take place and an invigilator should be present. The teacher is there to read the instructions and guide students

Running the Challenge

Centres are reminded that the role of the teaching colleague is that of a facilitator and not that of a normal classroom teacher. They are there to provide access to materials, monitor health and safety issues and read the teacher script to candidates, elaborating and explaining where this is indicated. Colleagues must not give advice to students about the design or manufacture of their product or cut materials to correct shape or dimension for students. It must be made clear to all candidates that this is an examination and we are assessing the individual student's designing and modelling capability.

It is clear in this session that a number of students have approached the challenge with pre-conceived ideas and have failed to respond creatively to the design challenges. It is the centres responsibility to provide modelling materials for candidates. It is not advisable for candidates to bring their own materials as this will hamper design thinking. A job bag should contain inspirational materials, images and information that could be useful when designing. It is not advisable to second guess questions as this can also hamper creativity, the specimen paper can be used to practice challenges under timed conditions. The way in which Centres use the pre-release theme can have a significant impact on the responses. A few candidates misinterpret challenges, either because they do not read them with sufficient care or because they choose to base their work on practiced work to a design challenge based on the pre-release themes.

The themes for the examination deliberately give little opportunity to prepare specification points or ideas in advance of the examination to prevent over-preparation of candidates. Centres are reminded of the specification content: "A theme is released in the September prior to the examination. Each theme runs for a year, enabling candidates to research and gather resources to form a personal handling collection/inspiration box/mood board, etc. Candidates should identify and collect these resources themselves, into a collection called a job bag, which is then taken into sessions 1 and 2. A challenge sheet based on the theme will be included with the workbook and will first be seen in session 1."

Photographs

The quality of photographs is generally good but examiners have reported some problems with the photographs presented for assessment. These problems include; failing to focus on the object, photos being printed at a size too large for the allocated positions within the workbook.

It is important that colour images of a good quality are provided by the centre. Photographs should be of an appropriate size to fit into the space provided.

The addition of a card with the candidates name within the photo can be used to aid the return of photos to students. Centres are reminded that three “teacher” photographs is the minimum required. Additional photos can be added to the workbook. This is particularly important if it is necessary to show other parts or views of an artefact to fully illustrate the final outcome. A small number of candidates did not stick photographs in the correct place. Photograph 1 is of modelling progress after first session, Photo 2 progress after the second session and Photo 3 the final model, space in this area allows for an extra photo of the final model if necessary to show detail or workings. More photographs can be included in the evaluation or progress report boxes.

It is recommended that if candidates wish to annotate photographs that a second print is produced and stuck into either the appropriate section of the workbook or into the ‘additional space’ and clearly labelled and then annotated. Candidates should be encouraged to stick photos into the workbook as they are printed.

Security of Workbooks

Centres are reminded of the importance of appropriate security of all workbooks between the three sessions of the Innovation Challenge.

Work of Candidates

Some excellent work has been seen this session from candidates who have shown both creative design flair and sound technical knowledge.

It is recommended that a significant part of the preparation for the exam should include development of skills and techniques to allow the candidates to present ideas quickly and practice of workbook completion under timed conditions. Examiners are aware of the pressure on candidates in this examination and marks are awarded with this in mind.

It is also worth noting that “skills involving analysis, evaluation and synthesis (creation of new knowledge) are thought to be of a higher order, requiring different learning and teaching methods, than the learning of facts and concepts.” Centres should teach evaluation and analysis throughout the AS year in order for candidates to achieve greater success in these areas. It is notable that areas such as specification, evaluation of ideas and final products and the realisation test specifically test these skills and are areas that discriminate well between candidates of different abilities.

Initial Thoughts

Candidates used a mix of text and drawings to explore the given theme and identify possible design areas/problems. Some candidates failed to think creatively about the problem and suggested only predictable responses. Candidates need to be encouraged to explore the challenge widely, take risks and think creatively. Many candidates explored the problem in depth considering the outdoor environment and market they were designing for.

Design Brief

Many candidates restated the design challenge word for word in this section. Candidates should be encouraged to write clear and precise design briefs that develop the design challenge further and offer scope for creativity. The majority of candidates identified the appropriate user groups for their products.

Specification

This section discriminates well between the more and less able candidates. The more successful concentrate their thinking on the functional and user needs of the product, and ensure that the relevance of all points are explained. There is often evidence of mnemonics used to prompt candidates to cover a broad range of specification points. Unfortunately, this often leads to a list of generic specification points that cannot be awarded marks unless made relevant to the question answered through specific references to the situation and careful justification.

A number of candidates produce specification points that lack justification. In order to explain 'why' and justify points candidates should be encouraged to include words such as "because", "so that" or "in order to" when writing their statements.

Ideas

Students used a mix of drawings, text, annotation and occasionally modelling/photographs to show their ideas. Lower scoring candidates reproduced the initial thoughts from section one of the challenge activity and disregarded both the design brief and specification. Higher performing candidates produced a range of creative ideas that clearly related to their specification and potential users. Development of the design from the 'initial thoughts' was clearly evident and most candidates produced a suitable range of creative ideas although for some it seemed difficult to move away from one basic concept, meaning all ideas were essentially the same. To be awarded high marks the ideas must be *functionally different* rather than relatively superficial changes in shape or configuration.

The standard of design communication was generally good. Candidates presented their ideas using a range of annotated drawings and text. Higher performing candidates gave different views of objects or parts of objects and clearly communicated their creative design thinking. Reference to the specification was generally good. Reference to source of inspiration/job bag was usually given although not always with pictures. Some good examples of evidence from job bags where candidates had collected a very broad range of items and took their inspiration from unrelated objects. A number of candidates just simply copied existing products. A small number of candidates had clearly filled job bags with modelling materials rather than with information and inspiration, this undoubtedly had a negative effect on design thinking. Centres are reminded that they should provide a range of modelling materials and that candidates need to spend time researching and gather resources to form a personal handling collection/inspiration box/mood board, etc which they bring to the challenge examination. "Candidates should identify and collect these resources themselves, into a collection called a job bag"

There was often a lack of sufficient evaluative comments, in many cases annotation for this section was purely descriptive and showed no real evaluation at all. Some candidates only focussed on the positive aspects of their ideas, with no reference to possible problems or improvements. Some used an "evaluation of ideas table" which can be successful if completed with evaluative comments. However, candidates should not use such a table with simple ticks, crosses or numbers, which do not really show the depth of thought required at this level. More able candidates were able to offer objective evaluation against all of their specification points.

In few cases it seemed that centres had a prepared a broad outline plan for model making (eg. You will all use the laser cutter, include a few led's if you can and do a bit of vacuum forming) and this completely hampered the thinking of the candidates.

Group feedback

The majority of candidates planned for the presentation and recorded the outcome. All candidates recorded feedback but some failed to record a response to this feedback. Where candidates scored highly they had taken the feedback and responded giving suggested improvements with the use of sketches to illustrate. Some candidates benefitted greatly from the feedback from other students showing a receptive approach to ideas and sometimes clearly responding to suggestions when developing their ideas in the next section. This is a skill that can be practiced through coursework, design activities and practice challenges.

Development of ideas

Some candidates failed to develop their ideas and simply copied the design from the ideas section into the development section or produced a card model of their initial idea with no further development taking place. It is important that candidates use notes or annotations to show how they are developing and improving their design towards an optimum solution that satisfies the design brief, specification and needs of the user.

Candidates are also expected to show consideration of materials, components and to consider methods of manufacture for their product. This section differentiates clearly between able and less able candidates. In some cases there is little or no evidence that candidates have any understanding of how their designs could be manufactured commercially using volume or batch production. Most candidates suggested materials for construction, however generic terms such as 'wood', 'plastic' or 'card' should be avoided, candidates will have information in their job bags about suitable materials and specific names and details are expected. Unfortunately, in some cases the materials are unsuitable for the product and its application, candidates should be encouraged to consider and explain their choice of materials. It is expected in this section that the size of the product is considered, dimensions of individual features, components and/or thicknesses of materials are considered by the more able candidates.

Plan for modelling

Action plans were good with lists of materials and action plans which ranged from basic statements to ones which included time schedules/flow charts and annotated sketches of how model would be constructed etc

Recording progress and modelling

Reflection in many cases was focussed particularly on the problems that candidates had encountered rather than details on all the possible solutions.

There were some excellent examples of models – the main point here is for candidates to use appropriate materials to enable them to fully reflect their design – where candidates fell down was where they failed to show all parts of their product through the model, eg if it has moving parts these were not modelled.

In a few cases candidates seemed used slightly inappropriate materials for their model making (eg rigid plastic (acrylic) to represent a folding umbrella type structure) because it was all that was available to them. Good preparation for the exam, by the centre, in terms of providing a suitable range of modelling materials is really important. Most centres seemed to provide appropriate modelling materials, where a wide range of items were provided the candidates were unrestricted; a few centres candidates were disadvantaged as they had to provide their own materials. In some cases candidates modelling in resistant materials were unable to show all aspects of a model due to time limitations. Centres should spend some of the year allowing students to develop their quick modelling skills using a variety of materials. Creative use of common inexpensive materials is probably the easiest way for candidates to score well in this section. The scale of the model also had a significant bearing on the success of the model making. When candidates attempted to make full size personal shelters they encountered real problems whilst working with simple pliant materials which were not really stiff or strong enough to complete the product; they may have had more success modelling a much smaller version.

In a few cases the quality and number of photos made it difficult to judge the real quality of the models made. It can be helpful to the examiner where candidates have shown photos through the reflect and record section and in the evaluation as it is easier to see the skills they have used. Some centres need to think more about how best to photograph the models to show full details. The use duplicate photographs within the evaluation can assist communication.

Evaluation

This was often a very weak section. Very few candidates attempted to record an improvement to their design and many failed to indicate any weaknesses even though they were all too obvious to the Examiner. Relatively few carried out a methodical comparison with their specification. A few used the 'scores out of 10' approach or tick boxes, this is not sufficient detail at this level and should be discouraged. In some candidates just talked about their model and not the product so failed to score marks. This is an example of higher order thinking skills mentioned at the start of the report.

Comments on Individual questions

Generally the most popular question was the Shelter, followed by the other question's that could be resistant materials based (BBQ, Bin). Generally the BBQ and Bin did have quite creative responses. A significant number of candidates took the Signage question but some solutions lacked creativity with some candidates just designing a traditional signpost.

A similar number of candidates took the Identification, some gave very good textiles based responses, however in some cases the modelling was too simplistic eg an existing T-Shirt being used and just lettering painted onto it. Responses to the Food question often lacked sufficient detail about ingredients and the reasons for choice. In some cases candidates designed food that was not suitable for barbequing.

Responses to most questions were similar in quality, with most questions producing a full range of marks.

Reflection Paper

Again responses were similar in quality and produced the full range of marks

Report on the Units taken in June 2009

A number of candidates referred to the wrong target audience that they would need to attract and not specific enough about how they would engage them. Some gave examples of how they would advertise on face book, TV and billboards to reach their target market, failing to address the overriding question that required a presentation to the council. Specific examples of how you would target and engage the market within the outdoor event was needed, many candidates did this well suggesting suitable methods depending on the size and scale of their product. The unique selling points of the product was easily answered by most candidates. The majority of candidates managed to give a suitable response for the modifications to make the product more economically viable – however, many just gave modifications to make a product more inclusive, some read this as environmental. It should be noted that candidates need to read each question and its bullet points carefully and ensure that they address each to ensure access to the full range of marks.

The majority of candidates generally scored less marks in the question 2, failing to include suitable manufacturing/materials and 'life cycle analysis' information. Many candidates just talked generally about materials and manufacturing their product rather than how they could ensure it was sustainable by the choice of methods and materials. Some did not appear to understand the term 'life cycle analysis' and instead talked about the product life cycle eg growth, maturity, decline instead of from an environmental perspective. Where it was understood a number of candidates focused on explaining what a life cycle analysis was, rather than providing details specific to their product.

A number of candidates just simply seemed to write down everything they had learned rather than giving a focussed response to the question.

It should be noted that it is stated in the specification; "candidates have the opportunity to reflect on the challenge by answering questions that require them to consider their product. These will be derived from a design, manufacturing or marketing perspective, including: sustainability and the environment; product life; social, moral and cultural issues; environmental issues; inclusive design; the human interface; aesthetics; scale of production; production technologies; fashion; marketing; commercial issues."

QWC (quality of written communication) is also assessed in this paper.

These areas should be taught through the AS course and students should learn to apply knowledge to products when evaluating and analysing.

F522 Product Study

General Comments

This was the first assessment session for the new Product Study Unit F522. Centres who had been successfully entering the Legacy specification since its launch in the year 2000 were joined by many new Centres taking this Unit for the first time. F522 is a new Unit and it needs to be emphasised that although it is based on the overall ethos of the Legacy specification it is moving a new and exciting direction with specific requirements, which need to be met under different assessment sections. All Centres need to check that they are working to the new specification. There is evidence to suggest that some candidates were prepared for this session using the old specification.

There is now an opportunity for candidates to enter E-Portfolios on an individual CD in the appropriate OCR standard format, which is at present Power Point. Although this is not a mandatory requirement, OCR sees it as the preferred option and Centres are encouraged to develop in this direction as soon as they feel comfortable with the change of approach. There is no pressure to do this immediately but Centres are encouraged to explore this possibility. OCR are developing an INSET course for this Autumn session which will give delegates the opportunity to either engage in basic E-Portfolio techniques or undertake a more advanced session. It will be possible to take both courses but this will entail booking on two separate days. (Details shown below)

This session only 30% of candidates entered their work as E-Portfolios. This was less than OCR had expected as initial feedback from teachers had indicated that 60-70% would prefer this option. The reason that OCR is encouraging the E-Portfolio has an academic rationale. The overall ethos of this new Product study unit is that evidence is provided in real time, as it actually happens and that 'interactive dialogue' is used to present information, again in real time. Candidates presenting on CD had the opportunity to include video clips and sound bites as part of a PP presentation, which showed real time use of their selected product and development of ideas. There were some outstanding presentations from candidates who utilised this new approach but again it is interesting to note that not all who entered a CD chose to do this. Over half of the CD's presented were PP presentations including scanned images and digital photographs without any video clips or dialogue.

Whether Centres choose to continue to enter paper portfolios or E-Portfolios it needs to be made categorically clear to candidates that the presentation of information in 'real time' is mandatory. They must show digital images of work undertaken as it is actually taking place. Candidates who failed to do this in some key sections would have had marks reduced. 'Interactive dialogue' is also an important requirement. Candidates need to understand that this means an interaction between themselves and others to discuss issues, again as they actually arise in real time. Videos and sound bites are a good way to achieve this; those working on paper still need to meet this requirement-the use of digital real time images is mandatory, dialogue can be added as written comment by others presented in their folder. Candidates must not be reticent about adding this, it may be that comments from others are not well presented, they must however be there! This approach is successfully adopted in the Advanced Innovation Challenge and its use should be actively encouraged in this unit.

Details of the new specification are clearly labeled Design and Technology: Product Design Advanced Subsidiary GCE H053 Unit F522. For first award in Summer 2009.

To support Centres and individual candidates, guidance for the new Unit can be found in the recommended OCR text 'OCR DESIGN AND TECHNOLOGY FOR A LEVEL' available from Hodder Education ISBN 978-0-340-96634-1.

OCR also offers a comprehensive programme of training for Design and Technology – details can be found in ‘Eventbooker’ – www.ocr.org.uk/eventbooker
Section by section guidance on Product Study requirements for Unit F522

This should take candidates 30 hours to earn up to 120 marks.

(1 hours work is notionally 4 marks)

OCR recommended page/PP allocations are indicated for each section

Product focus and analysis (8 marks 2 x A3/PP)

Products can be selected from any of 8 different focus areas:

- Built Environment and construction, Engineering, Food, Graphic Products, Manufacturing, Resistant Materials, Systems and Control, Textiles.

For marks in the top band all of the following should be addressed:

Detailed description of the intended purpose of **one single selected named** product (not a range)

Key Criteria used in the design of the product.

The needs of the manufacturer.

The needs of the consumer.

Where all four of the above have not been covered the Centre should consider awarding marks in the lower bands. Some candidates and some whole Centre groups are still considering generic groups of products. The first page of the candidate product study should state quite clearly and categorically what **specific, single named product** has been selected for analysis. Better candidates awarded marks in the top band show a clear photograph or video clip of their single selected product being used.

- For the new specification ‘real time digital images’ are required which show the single selected named product in use.
- ‘Interactive dialogue’ should be used to identify product features- this means talk about the product with others and record observations in real time-as it actually happens.

Strengths and weaknesses comparison (12) (2x A3/PP)

Good candidates should be encouraged to analyse the strengths and weaknesses of a *product* in *comparison* with similar products. Good responses often include a conclusion or summary, which relates similar products back to the single selected named product. Poor responses often include charts and tables populated with Internet images with no identification of the strengths and weaknesses of the selected product. Candidates should be encouraged to show evidence of actually using a range of products, which are compared with the selected product.

For marks in the top band the following should be addressed: function, suitability of materials and manufacturing processes, ergonomics, aesthetics and cost.

- For the new specification ‘real time digital images’ should show the strengths and weaknesses of the single selected product and also comparative products.
- Comparative products should be shown in use- in real time.
- Digital photographs or videos should be used.
- ‘Interactive dialogue’ should be used to discuss relative merits of products with others and recorded using video, sound bites, or written comment.

Moral Implications (8 1 x A3/PP)

Identify and analyse the moral implications associated with environmental, social and economic issues in the design and use of the product.

Moral implications should be considered in relation to the design and use of the product chosen for study:

- The requirements for this section in the new specification are generally unchanged. Centres should note that there is now a requirement to consider the moral implications associated with economic issues. (Not '*economical*' issues!)

This section has a new direction and is being misinterpreted by many candidates. The clear emphasis is now on the **moral implications** associated with three specific issues. Centres need to prepare candidates for this by organising and structuring **ethical debates** about the environment, social cultures and economic issues. The term '*economical issues*' should be avoided as it encourages a discussion of general cost issues, which is not what is intended. A far wider debate about the effects of the global economy and exploitation of workers is required. This section is very poor in many cases and large reductions are being made by moderators. Marks in the top band are not awarded in many cases. For future candidates and any candidates re-submitting an ethical debate about economic issues is essential. Clear advice and structured teaching is required. Advice may be sought from the Intermediate Technology Development Group now renamed Practical Action. Access to this is through their Sustainable Design Award Web site: (www.sda-uk.org). They are willing to help and have structured their advice to mirror our assessment criteria. Better candidates have clearly shown evidence of addressing sustainable issues. Some excellent practice was seen this session – In particular one Centre where candidates produced videos of a Power Point presentation given to a group which included interactive questions and answers.

Brief and specification for improving the product (8 1 x A3/PP)

The design brief presented should relate to improving the single selected chosen product in some way. Centres should award marks in the lower bands where an improvement is not identified, or where the proposal is to redesign a complete product. Moderators still report that many candidates are still trying to improve too many aspects of their selected product.

Specifications need to be detailed and justified, resulting from the objective analysis of the original product. Where there is little or no justification Centres should award marks in the lower bands. It can help if the justification for each specification point is clearly identified by using a different font size, style or colour- better candidates often use this technique, and it would help candidates in the middle and lower bands.

- **For the new specification these two sections are linked and assessed under one criterion for brief and specification.**
- **Centres should note that the brief should identify a clear improvement to one single selected product and the specification should be fully justified.**
- **Proposals to redesign a complete new product should always be marked in the lower band.**

Development of improvement (56 10 x A3/PP)

This new section which relies on the integration of three separate requirements for successful completion. There is a very large allocation of marks for this assessment criterion; this is deliberate as it was considered during development that this is where the majority of candidates would choose to spend their time and energies. As there will be many different approaches to this section appropriate to different focus areas it might be helpful to consider that the expectation in relation to the notional guideline of 4 marks per hour means that candidates should devote 14 hours to this section.

56 marks is a very large allocation to accurately apportion in three mark bands and many Centres found this difficult. The requirements generally break down into three sub sections. It could be helpful to Centres if they allocated marks to each sub section in line with the recommendation shown below. Many Centres did realise that the 56 marks for this section did in fact generally represent the sum of the marks allocated to the old legacy specification for similar sections. (One mark was lost due to the need for an even number outcome:

- The generation of innovative/creative ideas (14)
- The making of appropriate prototype models (36)
- Detailed and objective evaluation of ideas against the specification. (6) (This is ongoing evaluation in this specification and should be carried out as ideas develop)

Present a wide range of innovative/creative initial ideas, which demonstrate a high level of development using high quality annotated sketching, real time digital images and interactive dialogue. (14 marks)

Integrate this with real time evidence of a wide range of appropriate prototype models. (36 marks)

Evaluate ideas against the specification in real time and justify the choice of one idea worthy of being taken forward. (6 marks)

The expectation here, for marks in the top band, is that a wide range of innovative/creative initial ideas are presented which demonstrate a high level of development using high quality annotated sketching. Simplistic sketches with little or no annotation should be awarded marks in the lower band. The expectation is that a specific improvement is developed, a few candidates try to re-design a whole product, and this is not the intention of this section.

- For the new specification, for all focus areas there is a need for presenting innovative and creative ideas which are annotated.
- The main difference for this specification is that these ideas are not presented in a separate section but integrated with ongoing evaluation and the development of the improvement through appropriate prototype modelling.

It is important that Candidates evaluate their ideas against the specification and clearly justify decisions made. Where little reference is made to the specification, Centres should award marks in the lower band. No marks at all should be awarded where there is no reference to the specification. Centres should note that it is impossible for candidates to access these marks if the original specification is missing. Zero for the specification automatically results in zero for the evaluation against it.

Where candidates choose to annotate their ideas sheets, they must make it clear which specification points are being cross-referenced. Colour highlighting can help in this respect. Better candidates clearly rationalise the choice of one idea to be further developed.

- For the new specification Centres should encourage the use of ongoing evaluation on the candidate ideas sheets.
- Previous practice of tabulating responses to this section could still be relevant to the justification of an idea to be taken forward but should not be encouraged as the main mechanism for ongoing evaluation which is best provided in real time as ideas develop.

Testing of final developed idea (12 marks 2 x A3/PP)

There is no requirement to make a test rig – Candidates can if they want to! (Many candidates produced test rigs in this session) Any appropriate method or system to formally test and evaluate the final developed idea will meet this requirement. Appropriate test might include using a product or getting others to use it, wearing it or getting others to wear it or eating it or getting others to eat it. A scientific or technical test could also be appropriate for some focus areas. Whichever method is thought by the candidate to be appropriate – there must be formally presented results. The results should be presented in real time, clearly and concisely. Many candidates are using customer surveys; some of these produce low level numerical data, which was of little value. Candidates should be encouraged to deepen the level of their analysis.

Produce a summary of the results of the product development with detailed analysis of how the prototypes and final tests contributed to establishing the validity of the chosen idea.

Present one further improvement in detail.

(8 marks 2 x A3/PP)

In addition to the presentation of the final test results, Candidates should summarise the results of their prototyping and suggest one further possible improvement to the product. There are three distinct sections to this assessment criterion. For marks in the top band, all three areas need to be considered. Better candidates show a clear annotated sketch of a further improvement.

Use a wide range of high quality text, graphical techniques, digital technology, and interactive dialogue as appropriate to present information. (8 marks All 30 A3 sheets)

The use of ICT must be included in the range of communication techniques used in the presentation of the folder; an over-dependence on the use of ICT/CAD should however be avoided. A combination of different approaches is to be encouraged. Candidates should be encouraged not to over enhance the background of their ideas sheets if this impairs the clarity of presentation. Many moderators report that it is hard to read through some 'over decorative backgrounds. Some candidates spend a disproportionate amount of time in enhancing the appearance of their pages, often at the expense of clarity.

- For the new specification the use of 'real time digital images ' is mandatory-they have to be used to record evidence of work as it actually happens.
- OCR are encouraging the use of short video clips, with sound bites (interactive dialogue) recorded as part of an E-Portfolio on a CD.
- If the preferred option is to continue to use a paper portfolio- Digital photographs must be used and interactive dialogue must be presented in alternative forms which show positive response to opinions from others.
- Communication in the new specification relates to the whole product study.
- Candidates should not over-enhance the background of design sheets.
- The use of Arial 10 pt (min) should be encouraged –this is widely available and does not corrupt.

Report on the Units taken in June 2009

- For the new specification prototype modelling should be fully integrated in to the development of creative ideas and ongoing evaluation. Different focus areas should respond with an appropriate balance of prototyping which suits the development of improvement for their selected product.
- It is important that all focus areas do respond with presenting an appropriate range of prototyped developments. One single 'final prototype' is not within the overall ethos of the specification.

Summary of Main features of Unit F522 for teaching from September 2009

Details of the new specification are clearly labeled Design and Technology: Product Design Advanced Subsidiary GCE H053 Unit F522. For first award in Summer 2009.

- **Products can be selected from any of 8 different focus areas:**
- **Built Environment and construction, Engineering, Food, Graphic Products, Manufacturing, Resistant Materials, Systems and Control, Textiles**
- Work can be presented on 20 sheets of A3 paper or CD ROM equivalent to current OCR approved standard. (currently PP)
- Please consult the OCR guidance booklet for submitting E-Portfolios. In particular guidance on 'Pack and Go' for PowerPoint
- For the Product Study please do not over enhance backgrounds
- Please use Arial font at least 10pt – This is widely available – can be read easily – does not corrupt
- If video clips are used: 3-5 of no more than 20 sec. each would be appropriate. – Make sure they work from an individual CD on an independent stand-alone laptop
- A candidate must submit either an A3 paper folder **or** an individual CD **not** both
- A Centre can submit some candidates work as A3 paper folders and some as CD's
- Centre and candidate name and number must be on all paper and individual CD's
- CD's must have full details on both the outside cover **and written on the actual CD**
- Work must be recorded in real time and digital technologies must be used
- A 'real time' digital image of the product in use will be an essential feature
- The ethos of the Unit remains the same: A single specific named product is selected and shown in use – a detailed description of the product is given together with needs of manufacturer and consumer. Key criteria are identified
- The idea section and modelling are now linked in a new section called 'Design Development'. The approach to this section will differ depending on the focus area studied by the candidate. The key thing is that the development is appropriate to the product and the focus area
- The requirement to make a test rig is no longer necessary this has been replaced with the need to plan and implement an appropriate test on the final developed idea
- If some Centres have grown to consider the test rig with great affection and bemoan its passing it will still be possible to submit one if it is considered an appropriate test!
- Communication skills now include the use of digital technology, and interactive dialogue candidates who fail to use these techniques should be marked in the lower bands.

Grade Thresholds

Advanced GCE Design and Technology: Product Design (H453)
 Advanced Subsidiary GCE Design and Technology: Product Design (H053)
 June 2009 Assessment Series

Unit Threshold Marks

Unit		Maximum Mark	A	B	C	D	E	U
F521	Raw	80	62	56	50	45	40	0
	UMS	80	64	56	48	40	32	0
F522	Raw	120	97	87	77	67	57	0
	UMS	120	96	84	72	60	48	0

Specification Aggregation Results

Overall threshold marks in UMS (ie after conversion of raw marks to uniform marks)

	Maximum Mark	A	B	C	D	E	U
H053	200	160	140	120	100	80	0

The cumulative percentage of candidates awarded each grade was as follows:

	A	B	C	D	E	U	Total Number of Candidates
H053	11.2	30.3	51.1	71.2	86.00	100	2493

2493 candidates aggregated this series

For a description of how UMS marks are calculated see:

http://www.ocr.org.uk/learners/ums_results.html

Statistics are correct at the time of publication.

OCR (Oxford Cambridge and RSA Examinations)
1 Hills Road
Cambridge
CB1 2EU

OCR Customer Contact Centre

14 – 19 Qualifications (General)

Telephone: 01223 553998

Facsimile: 01223 552627

Email: general.qualifications@ocr.org.uk

www.ocr.org.uk

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OCR (Oxford Cambridge and RSA Examinations)
Head office
Telephone: 01223 552552
Facsimile: 01223 552553

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