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INTRODUCTION

This is a guide for teachers so that you can see how we mark work for Cambridge Technicals.

The guide contains exemplar candidate work for this unit and covers selected learning outcomes (LOs), and grading criteria.

The accompanying commentary explains why each piece of work was awarded that grade. Additional guidance has been added to suggest improvements that could be made in order to achieve a higher grade.

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Model Assignments

Model assignments are available for the following units from the link below.

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Plagiarism

Work must be free from plagiarism. Plagiarism is the submission of someone else's work as your own and/or failure to acknowledge a source correctly. Plagiarism makes up a large percentage of cases of suspected malpractice reported to us by moderators. You must make sure you don't accept plagiarised work as evidence.

In line with the policy and procedures of JCQ on suspected malpractice, the penalties applied for plagiarism would usually result in the claim not being allowed.

Plagiarism often occurs innocently when learners don't know that they must reference or acknowledge their sources, or aren't sure how to do so. It's important to make sure your learners understand:

- the meaning of plagiarism and what penalties may be applied
- that they can refer to research, quotations or evidence produced by somebody else but they must list and reference their sources
- quoting someone else's work, even when it's properly sourced and referenced, isn't an indication of understanding. The learner has to 'do' something with that information to show they understand. For example, if a learner has to analyse data from an experiment, quoting data doesn't show that they understand what it means. The learner has to interpret the data and, by relating it to their assignment, say what they think it means.
<table>
<thead>
<tr>
<th>Grading Criteria - The Learner can:</th>
<th>Teacher comment</th>
<th>Page No./Evidence location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pass</strong> The grading criteria are the pass requirements for this unit. In order to achieve a pass grade, all pass criteria must be achieved.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Learning Outcome 1: Understand virtual and augmented reality and how they may be used</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>P1:</strong> Describe the uses of virtual and augmented reality by organisations</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Learning Outcome 2: Be able to design virtual and augmented reality resources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>P2:</strong> Produce a design specification for a virtual reality resource for an identified purpose</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>P3:</strong> Produce a design specification for an augmented reality resource for an identified purpose</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Learning Outcome 3: Be able to create a virtual or augmented reality resource</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>P4:</strong> Develop a virtual reality or an augmented reality resource for an identified purpose</td>
<td>Yes A VR resource has been developed which has been evidenced using screenshots and includes a link to the final product. The identified purpose has been included.</td>
<td></td>
</tr>
</tbody>
</table>

**Version 1**
Oxford Cambridge and RSA Examinations
<table>
<thead>
<tr>
<th>Grading Criteria</th>
<th>Grading Criteria achieved (✔)</th>
<th>Teacher comment</th>
<th>Page No./Evidence location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pass</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The grading criteria are the pass requirements for this unit. In order to achieve a pass grade, all pass criteria must be achieved.</td>
<td></td>
<td>A test table has been created to record the final testing and screenshots have been included to show that images were tested and reviewed during the creation process. A questionnaire has been created to gather feedback from end user testing.</td>
<td></td>
</tr>
<tr>
<td><strong>P5:</strong> Test the product during creation and once complete</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Learning Outcome 4:</strong> Be able to predict future applications for virtual and augmented reality</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>P6:</strong> Suggest possible future roles of virtual and augmented reality in future applications</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Grading Criteria - The Learner can:

<table>
<thead>
<tr>
<th>Merit Criteria</th>
<th>Grading Criteria achieved (*)</th>
<th>Teacher comment</th>
<th>Page No./Evidence location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learning Outcome 1:</strong> Understand virtual and augmented reality and how they may be used</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M1:</strong> Explain the impact that an identified virtual reality resource has had on society</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Learning Outcome 3:</strong> Be able to create a virtual or augmented reality resource</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M2:</strong> Make adjustments to the design based on outcomes of testing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Learning Outcome 4:</strong> Be able to predict future applications for virtual and augmented reality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M3:</strong> Evaluate the specific benefits to be gained by repurposing current examples of virtual and augmented reality into identified roles</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Version 1

Oxford Cambridge and RSA Examinations
## Distinction Criteria

The grading criteria are the distinction requirements for this unit. In order to achieve a distinction grade, all distinction criteria must be achieved and all merit and pass criteria must also have been achieved.

### Learning Outcome 1: Understand virtual and augmented reality and how they may be used

**D1:** Assess the impact that an identified augmented reality resource has had on society.

### Learning Outcome 3: Be able to create a virtual or augmented reality resource

**D2:** Evaluate the development stages during the creation of the resource.

<table>
<thead>
<tr>
<th>Grading Criteria achieved (**)</th>
<th>Teacher comment</th>
<th>Page No./Evidence location</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERALL GRADE (P, M or D)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I confirm that:

- the candidate’s work is solely that of the candidate concerned and was conducted under the required conditions as laid down in the qualification handbook;
- internal standardisation has been carried out and that all grades have been correctly recorded and accurately transcribed to the claim being submitted to OCR.

Completed by: ___________________________  Date: ___________________________

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K/507/5004/URS
LO3 – Evaluation
Design Stage...

- Has the product identified success criteria?

I feel that my success criteria was insufficient due to it not clearly stating what I aimed my project to achieve. This possibly created my projects outcome to not be as successful as hoped due to certain aspects however where the criteria states that a sufficient layout of the school was necessary I am quick to identify that this was not met which did cause issues throughout the process. This wasn’t a detailed outcome that I strived to achieve however I can now reflect upon how essential this aspect was. The final part of my original success criteria states that a short questionnaire at the end of the tour is suitable, this was achieved in my project and it gave me feedback for improvements. I did feel that this was also necessary as it allows the experiencer to express their opinion and help me for future projects.

This was roughly all that was mentioned in the success criteria making it clear to me that it was poorly written due to minimal points made. I would ensure a more sufficient success criteria was made for the future due it not helping me as much as anticipated which was unfortunate.
Project Management...

- Has the project deviated from the original scope?

In comparison from the original scope, I would be confident in saying that the final product was all I intended it to be with minor extras. I originally wanted a simple tour of a school in purpose for an opening evening and to allow parents or students to have a virtual reality tour of the school to expand their knowledge on the surroundings and overall feel. In the feedback I received 9 out of 14 people voted that that they left the tour with more knowledge about the school, showing the similarity in both the original scope and final product.

The only major difference was the questionnaire at the end of the tour for the user to fill out on their screen. This was not mentioned in the original scope as it was a last minute extra that I thought would be efficient.

- Has the project deviated from the budget as defined in the financial plan?

I completely went against the financial plan I initially agreed on in my specification due it being very overpriced and expensive for a short project like so. I was originally going to use a 360 rig with 6 go pros and a computer, this came to a total of £2399.94 which was much higher of a budget than I desired. Instead of my original idea, I used a free virtual reality app on an iPad to take my pictures and then I uploaded them onto a free virtual reality experience website which allows me to put the pictures together and create a tour. The iPad cost £459 which overall led to my finance being significantly cheaper and more cost effective.
Creation Stage...

- Has the project delivered business benefits identified in the business case?

The benefits I planned and the benefits I achieved are very similar due to my largest aim stating that I wanted to help inform parents and students on the school they were visiting and show them around via virtual reality. This added a sense of character to the school opening as it was much more fun and enjoyable for the expericer to undergo something different and innovative. This gave the school the benefit of possibly attracting more students and having a positive first impression. However as much as the tour informed parents and students about key aspects within the school my feedback shows that not many people felt the tour differed their mind on wanting to go the school or not. This is completely understandable however maybe if the problems occurred were improved then this feedback would be more positive.

- Has the project achieved the objectives in the terms of reference?

My projects original purpose was to allow parents and students to take part in a virtual reality tour I created of the school, the main objective was to create a fun yet informative project for anybody to undergo. This was achieved to a certain extent as I felt that maybe I could have included more information as the tour was on giving the user a more informative and worth while experience.

- Has the project deviated from the forecast resources levels as per the resources plan?

The resources that I intended to use where very costly and unnecessary, however the resources I did use were cost efficient due to only needing one iPad. In comparison I achieved a much more cost efficient way to complete my project due to all the software being free of purchase.

- Has the project conformed to the management processes as per the execution stage?

I feel that I did manage the process very professionally due to me being the only person involved in creating the project. It was much easier than expected to complete the tasks necessary and I felt that I was efficient with my time and money overall creating excellent management qualities. However, to great unfortunate my customer acceptance of the finished product was lower than expected due to the problems that occurred in the process.
Identify Potential Improvements for Similar Future Projects…

I came across many issues that needed to be improved in order to achieve a more successful outcome, firstly being the original picture I chose of the map. It was of a very poor quality that did not clearly show the separate floors that the school contained. This created problems with the effect of the final product due to the user not having a clear understanding of the location of places they were viewing. For example, the Maths department is on the second floor of the school however due to not having access to this on my map I placed the maths department at the front of the school so that people were aware that the maths department was not on the ground floor. Due to this, parents felt confused when viewing the tour as to where the actual maths department is causing an unprofessional approach. The lack of accuracy was poor. To improve this I have found a much more clear and accurate map of the school which clearly shows the different floors, allowing me to place all my departments correctly.

My second issue was my science panoramic picture as it was of a poor quality which made the tour less accurate and effective. It was still clear as to the surroundings however I initially aimed to have seamless pictures throughout. To improve this I took a second picture of the science department which came out significantly clearer.

Finally I would improve the overall final project by including more informative pop ups for the parents to read and acknowledge as I felt this would have been more effective.
LO3- Developing and Testing

To begin with I created a YouVisit account in order for me to access the necessary software. YouVisit is a virtual reality tech website that allows anybody to undergo virtual reality experiences that they have created.

When this was completed I began to add in my stops that I have previously decided to use in my specification of the virtual tour account of the college. These stops included Maths, English and Science as I thought these were the most important parts to show in my tour. Due to me wanting the students and parents to have the best possible experience with the tour I added an extra stop that I thought was necessary; the LRC. This meant I had 4 stops to fill in. I feel that parents who will be experiencing this will want to see the main three subjects (Maths, English and Science) and then finally the LRC gives off an overall opinion of the school due to it having many different uses; revision, lessons, computers and socialising. I then dragged in a print screen of a map of the college into my virtual experience in order to have a clearer understanding as to where I need to go to complete my virtual tour. I then further added my stops previously made onto the map which allowed the YouVisit account to see where I was planning on going for my virtual reality experience.

This is my finished map with the stops on, this map shows me the ground flooring of the college however this gives me a disadvantage due it not showing the different floors of the school which 2 of my stops are located on. So, I placed those two stops at the front of the college instead of a random unecessary point on the map.

These are my four stops; Maths, English, Science and the LRC.

This is the map.

This is where I placed the two stops that didn’t have a place on the map due it being poor quality and only showing the ground floor of the college. These stops are Maths and Science.
<table>
<thead>
<tr>
<th>Function being Tested</th>
<th>How it is Being Tested</th>
<th>Expected Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 departments; Maths, English, Science and LRC.</td>
<td>Preview the stops; 4 stops appear in the map shown above under the department names.</td>
<td>I should have 4 departments I can link to which can be identified on my map.</td>
</tr>
<tr>
<td>Panoramic pictures being taken need to be good quality, to achieve this I need</td>
<td>Preview all of my panoramic images to encounter if they stitch together.</td>
<td>Seamless images of my 4 departments.</td>
</tr>
<tr>
<td>to move around the room slowly and steady for them to stitch together.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My map needs to clearly illustrate where my stops are.</td>
<td>Preview the stops.</td>
<td>For me to view all of my stops accurately for the most effective results of my stops on the map.</td>
</tr>
<tr>
<td>To achieve clear lighting in order for my pictures to be clear.</td>
<td>Ensure all lighting is on when taking pictures.</td>
<td>For my panoramic shots to be clear in order for the experiencers of the tour to see everything as clear as possible.</td>
</tr>
<tr>
<td>My map needs to help students navigate around the school.</td>
<td>Ask the users for feedback about my map.</td>
<td>For the students and parents to view my map and understand it easily and quickly, ensuring the map is good quality.</td>
</tr>
</tbody>
</table>

**Sphere App:**

I used an app called Sphere when I was taking my panoramic pictures as it allowed me to take good quality pictures and store them within the app.

This app was better to use rather than the original camera on the iPad I used due to it making me (the user) go around the panoramic shot three times to blur all the images as smoothly as possible of the surroundings. This will then show full affect when the students and parents take my virtual reality tour.

Once I completed taking all of my panoramic pictures I then uploaded them onto my computer. This was another advantage that the Sphere app had as it allowed me to upload my pictures onto a computer through using a cable wire that connected to the iPad. This process was very quick and effective as I could upload the saved images from the desktop onto my YouVisit account.

**My pictures:**
This picture was of a maths room; it is not clear and smooth which is unfortunate due to me only having this image for my Maths stop.

This picture is off the Science department, due it turning out very uneven and blurred I decided to retake my science picture as an improvement which is as shown below.
I felt this picture for Science was a lot more of a better quality.

I took this picture of the sixth form study room, however I decided not to use it due to sixth form facilities not being as important as the stops I already have. The picture is also poor quality.
This picture is of an English classroom, I felt this came out pretty clear and smooth however it was not perfect due to some of the tables being slightly misplaced.

This is my final picture and it is of the LCR main room. This is within the entrance of the school making it the first place the tour will visit. I feel this picture was one of the best due to the lines being smooth and clear.

I then uploaded the pictures I decided to use onto my map in You Visit, this made the stops more visual as shown in the screenshot below. I did this by dragging my picture from a saved document onto each individual stop.
<table>
<thead>
<tr>
<th>Function being Tested</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 departments; Maths, English, Science and LRC.</td>
<td>Yes, I achieved this test as I had 4 departments within my virtual reality tour. These departments were the same as expected.</td>
</tr>
<tr>
<td>Panoramic pictures being taken need to be good quality, to achieve this I need to move around the room slowly and steady for them to stitch together. My map needs to clearly illustrate where my stops are.</td>
<td>Unfortunately, the pictures aren’t as clear as expected which led me to re-take one. This was time consuming and not effective as the Maths picture in particular still isn’t of a good standard possibly making the tour less professional than I hoped for.</td>
</tr>
<tr>
<td>To achieve clear lighting in order for my pictures to be clear.</td>
<td>My map clearly illustrated where two out of the four stops are. However due to the map only being on the ground floor and there being no sight of level 1 or 2 which some of my stops are meant to be located, I couldn’t allocate them to a different place and had to place the stops at the front of the building on the map. This is unfortunate and makes the stops less accurate. Yes, I felt the lighting was clear and correct for my pictures to be taken in, this allowed the surroundings in the pictures be seen more clearly.</td>
</tr>
<tr>
<td>My map needs to help students navigate around the school.</td>
<td>Unfortunately, the map was of a poor quality creating issues in the understanding of where the stops are. This meant that the parents were slightly confused as to where the 2 stops at the front of the school should be.</td>
</tr>
</tbody>
</table>
Questionnaire Feedback:

At the end of my tour I ensure a small list of questions would come up on the screen for feedback reasons on how well your tour was. The results were as follows…

1. Did you enjoy the tour? (1 being not at all 5 being completely)?
   - 1 – 0 Votes
   - 2 – 0 Votes
   - 3 – 1 Vote
   - 4 – 8 Votes
   - 5 – 5 Votes

2. Did you understand the map well?
   - 1 – 6 Votes
   - 2 – 3 Votes
   - 3 – 5 Votes
   - 4 – 0 Votes
   - 5 – 0 Votes

3. Did you feel you left with more information about the school?
   - 1 – 1 Vote
   - 2 – 0 Votes
   - 3 – 4 Votes
   - 4 – 8 Votes
   - 5 – 1 Vote

4. Did you feel that the pictures were to a good standard?
   - 1 – 0 Votes
   - 2 – 0 Votes
   - 3 – 10 Votes
   - 4 – 3 Votes
   - 5 – 1 Vote

5. Overall, did this tour differ your mind on if you would like…. to come this school?
   - 1 – 4 Votes
   - 2 – 5 Votes
   - 3 – 5 Votes
4 – 0 Votes

5 – 0 Votes

It is clear to me that the poor quality map caused a big problem with the users due to causing a large confusion. This is a key aspect that I would need to improve as 80% of parents asked for me to explain what the issue was.

Improvements:

The improvements I made for my virtual reality tour started off with me finding a more accurate and descriptive map of the school in order for me to place all of my stops in the right areas. This was my main problem that I needed to improve due to the large problems it caused. The better-quality map is shown below. It has three different pictures emphasizing the different levels within the school and allowing me to stop my points at a more accurate place for the parents to see.

My second improvement involved me retaking a picture of the science department, this was due to the original picture being extremely blurred making it hard for the parent to see the surroundings.
clearly. Shown below to the left is the original picture and then to the right is the improved picture. As you can see, the improved picture shows much more surroundings and clearly allows the viewer to see the details within the picture; overall making the tour as effective as possible.

Here is a link to my Virtual Reality Tour [http://www.it/lir1Qn](http://www.it/lir1Qn)
Commentary

LO3 P4 requires the learner to develop a virtual or augmented reality resource for an identified purpose.

The learner has provided screenshots showing a range of images used in their virtual reality resource. The images of the Maths, Science and Sixth Form areas clearly show that a working resource has been developed and the additional commentary written by the learner provides evidence supporting functionality. The centre also provided access to a working version of the final product.

The learner has intimated that the development of the resource is for students and parents wishing to experience a virtual tour of the three main subject areas within the college, however the identified purpose of the virtual reality resource is more implied than clearly stated.

LO3 P5 requires the learner to test their product both during the creation process and post completion.

The learner has included a test table which has been used to document the testing of functionality. Screenshots and a description have been used by the learner to show that a ‘walkthrough’ of the product was completed which resulted in some changes being made during the creation process. The learner has completed the results table to evidence the post completion testing of the product, although the testing of functionality is minimal.

A questionnaire has also been created by the learner to facilitate the end user testing of the product and to gather feedback.

LO3 P4 could be made more secure with the inclusion of a clearly stated purpose for the virtual reality product, however, it should be noted that the identified purpose may have been previously included within LO2 P2.

LO3 P5 could be improved by the learner developing the test table to include more detailed functionality testing (e.g. interactive functionality and trigger points). Testing could have been further improved through the development of the questionnaire to generate more useful feedback based on the functionality of the product.

The learner could also have developed clearer links between the testing during creation and subsequent improvement stage to demonstrate a more iterative approach to the testing process.

LO3 P5 could have an improved questionnaire which includes questions relating to the functionality of the completed product. This would assist the learner with meeting the requirements of M2 when learners are asked to make adjustments to their design based on the outcomes from testing.

The learner could also show that testing has been clearly linked to the original success criteria from LO2.

LO3 P4 could be an opportunity for the inclusion of meaningful employer involvement. Learners could include the client (e.g. network manager or an external employer) in the testing process. Identification of the client may have been addressed within LO2, however, the involvement of the client during the testing process could be additionally recorded on the MEI document.

Learners could create a video to show the testing of the product, or interviews with end users, as evidence to support LO3 P5.
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