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# TECH LEVEL ENTERTAINMENT TECHNOLOGY

3D Environment Art  
Report on the Examination

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TVQ01022/TVQ01023/TVQ01024/TVQ01025

June 2017

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## General Comments

The attempts submitted showed that the majority of students understood the methods and techniques required to produce 3D models for games environments at a basic level.

Please note the following:

- to achieve a pass, all of the criteria for pass must be appropriately evidenced
- to achieve a merit, all of the criteria for pass and merit must be appropriately evidenced
- to achieve a distinction, all of the criteria for pass, merit and distinction must be appropriately evidenced.

A small number of students addressed distinction criteria but had failed to address one or more of the merit criteria, therefore limiting their achievement.

## Administration

It was pleasing to see that the majority of students indicated within their portfolios where the individual assessment criteria was addressed, eg by listing the relevant criteria number in the title. This is recommended as best practice.

Grading Criteria	Commentary
<b>P1</b> Model three objects using three different polygon modelling techniques such as box modelling, edge extrusion and polygon detailing/chamfering	This was completed well by all students. Ideally, they should be encouraged to think more about assets which could be applied to the exterior of the building rather than environment assets which are external objects. For this assessment items such as air conditioning units, security lights, etc would have been more applicable than shipping containers and skips. To cover this criteria effectively more consideration of elements to build the modular building would be beneficial.
<b>P2</b> Model three objects using three different spline modelling techniques such as lathing, tangents and lofting.	This was achieved by all students who attempted it. There were a few examples of objects which spline creation was not the most suitable solution and applicants were not penalised for this, but should be encouraged to create objects which would not be practical to create with polygon modelling techniques. Spline approaches should be considered for objects which would be best created with loft or lathe operations.
<b>P3</b> Create a modular building pack of ten modelled assets. Each model should demonstrate grid snapping, pivot points, symmetry and modularity theory.	This was achieved by those who attempted it. Some of the examples whilst technical modular, were not ideal for re-use for building variations of a building. Examples such as Scott Homer ( <a href="http://i.imgur.com/C8m9f.jpg">http://i.imgur.com/C8m9f.jpg</a> from <a href="http://polycount.com/discussion/80242/portfolio-scott-homer-environment-artist">http://polycount.com/discussion/80242/portfolio-scott-homer-environment-artist</a> ), Tyler Wanlass (3D Motive Tutorial <a href="http://3dmotive.com/series/modular-building-with-udk.html">http://3dmotive.com/series/modular-building-with-udk.html</a> ) and Matt Oztalay ( <a href="http://www.oztalay.com/matt/wp-content/uploads/0002_veniceModKit.jpg">http://www.oztalay.com/matt/wp-content/uploads/0002_veniceModKit.jpg</a> &

	<p><a href="http://www.oztalay.com/matt/wp-content/uploads/0001_venice.jpg">http://www.oztalay.com/matt/wp-content/uploads/0001_venice.jpg</a> from <a href="http://www.oztalay.com/matt/portfolio/">http://www.oztalay.com/matt/portfolio/</a> ) should be used as examples of modular assets suitable for environment art.</p> <p>One element which wasn't particularly well evidenced was pivot point location (0,0,0) and the use of the grid for snapping.</p>
<b>P4</b>  Create three different PBR tileable textures that show an understanding of organic and man-made surfaces	<p>There were some questionable tiling in places but overall these were fine.</p> <p>Note: as with all PBR based criteria, it was agreed that we would accept diffuse only due to the time limitations on the assessment.</p>
<b>P5</b>  Unwrap and create at least one PBR texture set for the three polygon modelled objects created in P1.	As P4, PBR was swapped for diffuse only which is fine. The utilisation of UVW space was a bit wasteful in places.
<b>P6</b>  Unwrap and create a PBR texture atlas for the ten assets in the modular building pack. The atlas should demonstrate use of material ID's, sub-object materials and multiple tiling materials.	<p>There is some confusion over the term atlas. Leniency was applied due to this being the first attempt at this unit's assessment. Improvements could be made by making better use of UVW space for a larger number of assets.</p> <p>It was felt that learners would benefit from a visual example to be included in future assessments to assist in the understanding of the term atlas. As mentioned previous, PBR replaced with diffuse only.</p>
<b>P7</b>  Using the grid and snap techniques, layout the modular building pack to create a completed building.	Evidence could be enhanced by ensuring that use of the grid and snapping is shown.
<b>P8</b>  Create a lighting solution to present the completed building. The solution should demonstrate light creation, lighting theory, control of intensity and colour and control of shadow.	Students achieved this through use of a games engine. The chosen solutions were often a bit simplistic and could be pushed further.
<b>P9</b>  Create a camera flythrough and turntable (30 second maximum). The flythrough should make use of	Turntables were probably a little fast for proper presentation. The flythroughs would benefit from being slower and having a bit more consideration for the smoothness of the final video. Some were too fast and contained sudden direction changes. Learners would benefit from using multiple cameras to show

composition, camera placement and camera animation.	different views rather than the long roller coaster approach.
<b>P10</b>  Review tiling textures and atlases created in P4, P5 and P6, by making an online forum post. This review (300 words minimum) should comment on texturing construction methods.	This element was achieved well however, the approach to reviewing work was a bit weak.  Generally discussion was okay. However, students should be encouraged to review their work with comparisons to professional examples.
<b>P11</b>  Present the five polygon-modelled objects and the ten modular building assets to your peers, demonstrating an understanding of modelling and texturing techniques.	The majority of students chose to do a formal, powerpoint styled presentation and whilst this was accepted and awarded the pass criteria, ideally, this should be achieved by producing presentation sheets suitable for including work on a digital portfolio such as Art Station.  Please note a physical presentation is not required.
<b>M1</b>  Produce a render sheet for each polygon model. The sheet should include wireframes, smoothing groups and a lit render.	The attempts at this could only be loosely categorised as 'render sheets'. The presentation quality was a little low and the sheets would benefit from including multiple angles and the inclusion of construction information such as wireframe views and triangle counts.  All this information should ideally be in a single image which could be posted to a portfolio, not as multiple images.
<b>M2</b>  Optimise each of the three polygon modelled objects showing management of tricounts and game budgets.	This wasn't always evidenced particularly well but was assessed based upon the render sheets and wireframe views that were provided.  This should be evidenced with images of before and after optimisation showing consideration for a final, game suitable mesh.
<b>M3</b>  Create a normal map for each of the three polygon-modelled objects created in P1.	The Photoshop filter approach is fine but some attempts showed use of wrong normal map solution (world space vs object space) and some normal maps seem to have been generated from odd sources resulting in some odd end results.  Learners should be encouraged to think about what the end result is and should be advised to not simply run their diffuse texture through the filter tools.
<b>M4</b>  Create three different FX	The majority of students who attempted this achieved it. However, it is worth noting that a large proportion of the examples were very minimal attempts at FX textures and only

textures including an emissive, decal and opacity map. The FX textures are to be used with the ten assets in the modular building pack.	provided minimal additional benefit to the scene.
<b>M5</b> Render the camera flythrough as a video. The final video should be uploaded to a video host such as YouTube. It should use codecs and formats, and feature video graphics.	Attempts at this criterion rarely included video graphics and elements such as name of artist, etc would be ideal.
<b>M6</b> Analyse the modular building assets and completed building, ensuring that the assets have working materials. Make a forum post that shows off finished renders of the modular building assets and completed building.	This was attempted well but it would be ideal to show the modular pieces in alternative layouts to show their suitability as modular assets and show each individual asset, fully textured with working materials.

<b>D1</b> Create three different foliage assets for the modular building pack.	Most students attempted this criterion however often the foliage assets were not suitable for use in games. The examples produced contained too many polys. The other areas that the examples were not considered suitable was the quality of textures and whilst alpha channels had been used, often the textures were not suitable for the required art style or were not suitable for use on textured planes.
<b>D2</b> Using the lighting and camera pipelines, create a skybox for the completed building that shows an understanding of lighting and composition theory.	Achieved by all who attempted it, it was good to see some custom skyboxes produced from using photos from local areas etc.
<b>D3</b> Evaluate your modular building assets and completed building by creating a paint over suggesting where improvements could be made.	This was attempted by most, however, the evidence provided rarely constituted a paint over.  Most attempts were overly vague. Very few students achieved this and those that did, did so due to their focus on issues, close up examples and comments related to where improvements could be made.

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	<p>Attempts at this criterion could be vastly improved with the use of referenced examples of professional pieces and potential techniques (such as tutorials), which could be used to achieve a better result.</p> <p>Use of examples was listed in the criteria.</p>
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