Assessment 1: **Interactive 3D scene 1, 50%**

**SUBMISSION DATE:** 01/12/2023**, 12:00 noon**

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| **Component Number** | **Form of assessment** | **Assessment size** | **Weighting (%)** | **Learning Outcomes assessed** |
| 1 | Interactive 3D scene 1 | 1500 words equivalent | 100% | 1, 2 |

For this assessment, you are tasked with creating a 3D application which demonstrates the use of the following graphical techniques:

1. Graphics primitives
2. Transformations
3. Movable Cameras
4. Loading texture files
5. Textures Meshes
6. Phong Lighting
7. Loading 3D models
8. Shaders
9. Normal maps
10. Specular maps

For higher marks you will need to implement the following.

|  |  |
| --- | --- |
| Multiple lights |  |
| Flat lighting |  |
| Gouraud Lighting |  |
| Multiple cameras |  |
| Animated textures  (sprite sheet) |  |
| Spotlights |  |
| Directional lights |  |
| Shadow maps |  |
| Use IMgui to build a GUI for controlling aspects of you program |  |

**The assessment will only focus on the graphical related aspects of your application/game. Other aspects of the application/game such physics, input control, AI etc will not be considered.**

## Submission

Your submission should be well organised, with individual folders for the elements required

Please ensure that your submission works as intended before you submit it.

# ASSESSMENT 1 CRITERIA

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| **Student Name:** | | |
| **3rd** | **1st Marker** | **2nd Marker** |
| Basic techniques for graphics primitive (i.e. a triangle, square or other similar simple shape) have been replicated | /2 |  |
| Basic techniques for transformations & camera are replicated have been replicated | /2 |  |
| Basic implementation and use of shaders have been replicated | /3 |  |
| Basic implementation of Phong lighting have been replicated | /3 |  |
| **2:2 *As for 3rd, but including*** |  |  |
| Implementation of loading textures has been replicated | /2 |  |
| Implementation and use of textures on meshed (for diffuse colour) has been replicated | /2 |  |
| implementation and use of normal maps, has been replicated | /2 |  |
| implementation and use of specular maps, has been replicated | /2 |  |
| Implementation and use of loading 3d models, has been replicated | /2 |  |
| **2:1 *As for 2:2, but including*** |  |  |
| Multiple lights have been implemented and used | /3 |  |
| Flat lighting has been implemented and used | /1 |  |
| Gouraud lighting has been implemented and used | /1 |  |
| Directional lights have been implemented and used | /2 |  |
| GUI system (IMgui or other) has been implemented and used | /3 |  |
| **1st *As for 2:1, but including*** |  |  |
| Animated textures (sprite sheets) have been implemented and used. | /3 |  |
| Spotlights have been implemented and used | /2 |  |
| Shadow maps have been implemented and used. | /3 |  |
| High levels of self-directed learning are evident. | /2 |  |
| **Grade** |  |  |
| **Agreed Grade** |  |  |
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