**Assignment 4 – Lighting & Texturing**

Submit your -minimized- project as a compressed (.zip) file to MUOnline.

Begin with the provided project attached alongside these instructions.

The relevant files you will be changing are ExampleGame.h/.cpp (Init() & Update()), Geometry.h, and PS\_inclass.hlsl. One possible solution to #5 involves editing VS\_inclass.hlsl as well. Feel free to change anything you want though.

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| 1. | In ExampleGame.cpp, on line 140, I’m hardcoding a special value to use in the size of the picture frames in the scene. Figure out what it’s called (look it up) and tell me something about it (1-2 sentences) in code comments or in the submission text on Blackboard.  ^ golden ratio, loss | 10% |
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| 2. | Fix the Z-Fighting issue with the picture frames.  ^ Do we have to do that non same float point equals function? | 10% |
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| 3. | In the scene there is a candle with a Point Light attached to it rotating around. The point light is already setup to send its data to the relevant shaders. Implement a point light in PS\_inclass.hlsl (the only pixel shader this project is using) so that it properly emits a ball of light on the objects around it. The pseudocode for doing so is in PS\_inclass.hlsl for you.  ^page 288 of textbook | 40% |
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| 4. | (In Geometry.h) Modify the vertices forming the left picture frame (Geometry::CreatePictureFrame1) so that the picture appears in a 3x3 grid instead of just a single portrait. Modify the vertices of the right picture frame (Geometry::CreatePictureFrame2) so that instead of seeing the whole image, it zooms in on the face in the image.  ^this was on Monday 15th lecture, page 388 in book | 20% |
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| 5. | Make the texture in the left picture frame scroll (animate). See attached gif for clarification. The trick here is to make sure only that one object has an animated texture; you can use a speed variable and make sure its 0 for everything else, or make and load a separate shader for this object.  ^ Page 338 for this | 10% |
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| 6. | Add textures of your choice to the walls, floor, and table. | 10% |