

M3I622944

Coursework

Graphics Programming

| Session 2019 - 2020

Plagiarism

Attention is drawn to the University regulations on plagiarism. Whilst discussion of the coursework between students is encouraged, the actual work has to be undertaken individually. Collusion may result in a zero mark being recorded for the coursework for all concerned and may result in further action being taken.

Module Leader: Bryan Young (bryan.young@gcu.ac.uk)

Scenario

This coursework will test your ability to develop a 3D scene containing visual effects implemented using GLSL shaders.

Specification

The following **minimum** specification should be adhered to, a application that:

- **Three different** models.
- *One* camera.
- A shader class that imports shaders and compiles them into a shader program.
- The application must make use of **THREE SHADER PROGRAMS** comprised of *THREE imported vertex* shaders, *THREE imported fragment* shaders and at least *ONE imported geometry* shader.
- The shaders must contain different visual effects, *ONE per model*.
- Two of the shaders programs **must be based on the exploding shader from the lab 4 and the enviroment mapping form lab 7.**

Extension

15% of the total mark will awarded for the application architecture, including a shader class that allows you to pass information to the **uniforms**.

25% of the total mark will be awarded for complexing the exploding shader with a **textured model** and the enviroment mapping shader.

25% of the total mark will be awarded for the implementation of an additional graphical technique of your choice, **implemented using shaders**.

35% of the total mark will be awarded for a document explaining the code used to generate the additional graphical technique (NOT THE EXPLODING SHADER OR ENVIROMENT MAPPING SHADER). (Word count limit 2500).

Deliverables

The following should be submitted:

- A cover page clearly stating: Name, Matriculation number, Course and the following disclaimer:

I confirm that the code contained in this file (other than that provided or authorised) is all my own work and has not been submitted elsewhere in fulfilment of this or any other award.

Signature.

- Documentation:
 - An explanation of the code used to generate **the additional graphical technique** (2500-word limit). This section should be written using a coherent paragraph structure and not bullet points (25%). This should must be a structured document as follows (5%):
 - Front cover
 - Contents page
 - Description of code
 - Numbered Sections & Page numbers
 - **Generated** table of contents
 - **Fully justified** text format
 - Labelled tables & figures
 - Consistent formatting and labelling

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Submission

Final Submission

Submission of this coursework will be demonstrated at an arranged time on **13/05/20**, however demonstrations can be arranged before that date. Late submissions will not be tolerated and, without a valid reason, will be considered as non submissions.

Marking Scheme

Marks for this coursework will be awarded on the following basis:

	Mark
<i>Code</i>	Up to
Game Framework/Shader Class Appropriate functionality – Application that allows the use to pass information directly to uniforms.	15
Shader 1 – Exploding Shader Appropriate functionality – Complete the exploding shader presented in in lab 5. Alter the shader code so the exploding model is textured. Shader 2 – Enviroment Mapping Shader Appropriate functionality – Complete the enviroment mapping shader presented in in lab 8.	25
Sub Total	40
Extension Material Shader 3	
Shader 3 – Implement an additional graphical technique of your choice. The complexity of the shader will not be the main factor in determining the mark, the main factor will be the contribution of the student's own work to the shader code.	25

Sub Total	25
Documentation (Internal & External)	
Code Explanation	30
Explanation of the code used to generate the graphical technique, full explanations should explain the variables, methods, information passed between shaders and mathematical calculations.	5
Presentation <ul style="list-style-type: none"> • Numbered Sections & Page numbers • Generated table of contents • Fully justified text format • Labelled tables & figures • Consistent formatting and labelling 	
Sub Total	35
Total	0

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University regulations, codes & policies:

<http://www.gcal.ac.uk/student/about/regulations/index.html>

Plagiarism and cheating:

<http://www.gcal.ac.uk/student/coursework/regulations/plagiarism.html>