DEPARTMENT OF COMPUTER SCIENCE

COURSEWORK ASSESSMENT DESCRIPTION

MODULE DETAILS:

Module Number:	08968	Semester:	2
Module Title:	Advanced Rendering and AI for Games		
Lecturer:	QL		

COURSEWORK DETAILS:

Coursework Assessment Number:	1	of	2		
Title of Assignment:	Teapot War				
Format:	Program	Report			
Method of Working:	Individual				
Workload Guidance:	Typically, you should expect to spend between	55	and	65	hours on this assessment
Length of Submission:	This assignment should be **no** more than	1500 **words** *(excluding diagrams, appendices, bibliography, code)*			

PUBLICATION:

Date of issue:	Friday 19/02/2010

SUBMISSION:

ONE copy of this assignment should be handed in via:	White Box	If Other (please state method)	
Time and date for submission:	**9.30am**	Friday 19/03/2010	
If **multiple hand–ins** please provide details *(as appropriate):*			

The assignment should be handed in **no later** than the time and date shown above, unless an extension has been authorised on a *Request for an Extension for an Assessment* (Mit Circs) form which is available from the Office or http://www.student-admin.hull.ac.uk/downloads/Mitcircs.doc. The extension form, once authorised by the lecturer concerned, should be sent to Amanda Millson.

MARKING:

Marking will be by:	Student Number

BEFORE submission, each student must complete the **correct** departmental coursework cover sheet and attach it to your work, dependant upon whether the assignment is being marked by student number, student name, group number or group name. This is obtainable from the departmental student intranet at http://intra.net.dcs.hull.ac.uk/sites/home/student/ACW%20Cover%20Sheets/Forms/AllItems.aspx

ASSESSMENT:

The assignment is marked out of:	100	and is worth	50	% of the module marks

ASSESSMENT STRATEGY AND LEARNING OUTCOMES:
The overall assessment strategy is designed to evaluate the student's achievement of the module learning outcomes, and is subdivided as follows:

LO	Learning Outcome	Method of Assessment *{e.g. report, demo}*
2	*Design 3D graphics programs for photorealistic graphics*	program, report
3	*Demonstrate the concepts underpinning pixel and vertex shaders*	program, report
5	*Implement graphics software using pixel and vertex shaders*	program
6	*Implement software for photorealistic rendering*	program

Assessment Criteria	Contributes to Learning Outcome	Mark
Overall visual quality	2,3,5,6	10
Code quality	5,6	15
Quality of Rendering	2,3,5,6	35
Quality of animation	2,3,5,6	35
Quality of report	3,5	5

FEEDBACK

Feedback will be given via:	Annotation	Feedback will be given via:	Select secondary method
Exemption (staff to explain why)			
Feedback will be provided no later than 20 working days after the submission date.			

This assessment is set in the context of the learning outcomes for the module and does not by itself constitute a definitive specification of the assessment. If you are in any doubt as to the relationship between what you have been asked to do and the module content you should take this matter up with the member of staff who set the assessment as soon as possible.

You are advised to read the **NOTES** regarding late penalties, over-length assignments, unfair means and quality assurance in your student handbook, also available on the department's student intranet at: **http://intra.net.dcs.hull.ac.uk/sites/home/student/default.aspx**. In addition, **please note** that if one student gives their solution to another student who submits it as their own work, **BOTH** students are breaking the unfair means regulations, and will be investigated.

In case of any subsequent dispute, query, or appeal regarding your coursework, you are reminded that it is your responsibility, not the Department's, to produce the assignment in question.

(Assignment Details Overleaf)

Teapot War

The aim of the assignment is to provide you with opportunities to take advantage of modern programmable GPUs to design and implement graphics effects used in a battlefield computer game. You are required to write various battlefield effects as a set of shaders in HLSL and display them in RenderMonkey™ Toolsuite. All these effects should be implemented as different passes under a single effect group. The key characters involved in the battle will be teapot-like robots with different appearances and behaviours.

1. *Basic Effects*

   The basic effects may include, but are not limited to:

   a. **Sky** using the *cube mapping* technique; (5%)
   b. Bump mapped **terrain**; (5%)
   c. *Animated* **lake water,** which can be done in either per-vertex or per-pixel manner; (5%)
   d. Various kind of deformed and animated teapots:
      1) **Burning** eroded teapot; (5%)
      2) **Flying jet-like** teapot; (5%)
      3) **Robot-like** teapot; (5%)
      4) **Tank-like** teapot**;** (5%)
   e. **Fire**, **smoke**, and **explosions** rendered with either *particle systems* or texture-based animation techniques; (20%)
   f. *Animated* **flags**; (5%)

2. *Optional Effects* (35%)

   To achieve first class marks, the following effects may need to be considered

   a. Interesting deformed and animated teapots of your own;
   b. Animated tongues of fire jetted from the tail of the flying teapot-jet and missiles;
   c. Synchronized behaviors between flying missiles and explosions;
   d. Some *ray traced* **shiny** and **transparent glass balls** floating on the water surface;
   e. Any other novel effects you would like to add to increase the realism of the battle field.

3. *Geometric models and textures*

   The geometric models and textures provided in RenderMonkey Toolsuite and DirectX SDK are sufficient for the coursework. However, you are allowed to use geometric models and textures created by yourself or obtained from the internet, but this is not encouraged in the early stages of doing the coursework.

What to submit:

a. A short report (5%) to describe what effects have successfully been implemented and explain briefly how these effects are implemented. Illustrate each effect with a screen shot of your shader programs.
b. Burn your report and your RenderMonkey program (an exported RebderMonkey rfx file, together with all relevant media files) on to a CD and submit via White Box.