

DEPARTMENT OF COMPUTER SCIENCE
COURSEWORK ASSESSMENT DESCRIPTION

MODULE DETAILS:

| | | | |
|----------------|---|-----------|---|
| Module Number: | 08356 | Semester: | 1 |
| Module Title: | Advanced Graphics and Games Programming | | |
| Lecturer: | QL | | |

COURSEWORK DETAILS:

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|-------------------------------|--|--------|--|
| Coursework Assessment Number: | 2 | of | 2 |
| Title of Assignment: | Virtual Kitchen Graphics Effects | | |
| Format: | Program | Report | |
| Method of Working: | Individual | | |
| Workload Guidance: | Typically, you should expect to spend between | 25 | and 30 hours on this assessment |
| Length of Submission: | This assignment should be no more than: | | N/A - coding exercise words (excluding diagrams, appendices, bibliography, code) |

PUBLICATION:

| | |
|----------------|-------------------|
| Date of issue: | 15 November, 2008 |
|----------------|-------------------|

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 on 15 December, 2008 | | |
| 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 Name |
|---------------------|--------------|

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 | 20 | % 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} |
|----------|---|---|
| 1 | Develop and apply original solutions to the design and implementation of game programming problems on a variety of hardware platforms | Program, report |
| 2 | Use current games programming techniques | Program, report |
| 3 | Understand the application of vectors and matrices to graphical problems | Program |

| Assessment Criteria | Contributes to Learning Outcome | Mark |
|-----------------------------|---------------------------------|------|
| quality of graphics effects | 1,2,3 | 30 |
| quality of animation | 1,2,3 | 35 |
| novelty features | 1,2,3 | 10 |
| quality of program | 3 | 20 |
| quality of report | 1,2 | 5 |

FEEDBACK

| | | | |
|--|------------|-----------------------------|-----|
| Feedback will be given via: | annotation | Feedback will be given via: | N/A |
| 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 – see attached

08356 ACW2:
Virtual Kitchen Graphics Effects

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 TV advert for selling kitchen facilities. You are required to write these effects as a set of shader programmes in GLSL and display them using RenderMonkey™ Toolsuite.

1. *Basic Effects*

The effects may include, but are not limited to:

- a. *Texture mapped kitchen environment.* (10%)
- b. **Shiny teapot** rendered using *cube mapping* technique, which reflects the kitchen environment. (10%)
- c. **Bumpy brick walls** around the cooker rendered with *bump mapping* or *Parallax mapping* techniques (10%)
- d. *Animated cooker fire* and **steam** emitted from the rim of teapot. These effects can be rendered using *particle systems* technique. (15%)
- e. Some **spot light sources** used to illuminate the kitchen. These light sources can either be implemented using either a per-vertex or a per-pixel approach. (10%)
- f. Some kitchen facilities, such as cooker and kitchen cabinets. (10%)

2. *Optional Effects*

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

- a. *Animated* teapot lid motion due to steam escaping. (10%)
- b. *Animated water* in the kitchen sink. (10%)
- c. Any novel effects attempted. (10%)

3. *Geometric models and textures*

The geometric models and textures used in the program can be obtained from some known graphics software or APIs, such as those in the media directories of the RenderMonkey Toolsuite, the DirectX SDK, the NVIDIA SDK. You can also download the geometric models and textures required in your effects from the internet. In addition, you can design and produce your own geometric shapes using certain graphics software such as Maya and 3D studio Max. Any external models/textures used in the assessment should be referenced in the report.

What to submit:

- a. A short report of no more than five pages (worth 5% of this assessment) to describe what you have achieved and how each effect is implemented. Illustrate your effects with some screenshots.
- b. Burn your report and the Rendermonkey program, together with all required media files on to a CD and submit with white box.