CPT20T – Computer Graphics (2024-25)

Assessment 2 – 3D Modelling Project

Assessment number	2
Contribution to overall module assessment	**15%**
Date on which assessment given	**Monday, 4 November 2024**
Submission deadline	**Sunday, 8 December 2024**

1. Learning Outcomes for this Assessment

This assessment aims at assessing your understanding of the topics and knowledge of the theory and methods by applying and implementing a range of the techniques / algorithms covered in the lecture and lab sessions. You will demonstrate substantial work through appropriate design and implementation of a three-dimensional (3D) scene with a number of objects.

2. The Task

You will create a well-thought 3D scene, which is suitable to demonstrate your knowledge and skills in computer graphics. A key objective of the assignment is to make effective use of the graphics techniques and OpenGL functions covered in the module. In particular, you should consider the following in completing this assignment:

- A well-thought design of 3D scene with a number of static and moving objects (the scene, which is not necessarily very complex, but could still represent daily life, e.g., the train track used in the lab);
- A range of graphics techniques utilised in an appropriate manner, e.g., creation of geometry, hierarchical modelling, transformations, viewing and projection, lighting and materials, texture mapping, animation and interactions;
- Effective use of relevant OpenGL libraries in **freeglut** (no other OpenGL libraries to be used);
- Good programming practice (e.g., necessary comments and neat format of the code) – **appropriately acknowledge sources used in your assignment work.**

3. The Written Report

You are required to produce a report of up to 5 A4 sides that

a) shows basic information – module code and title, and your name, ID and degree programme;
b) describes the design and features of your work (relating to graphics techniques used but not explaining your code in detail);
c) provides a brief readme / instruction section about how your program can be run effectively (e.g., interactive commands with the mouse and keyboard);
d) contains a set of typical screenshots to show your program in action.

4. Submission of Work

a) Compress your **written report in pdf**, **source code (.cpp)**, **executable file (.exe)** and **texture image files** (**not** the whole MS VS solution/project which can have a very large file size) into a **single zip/rar file**. **Reduce** the resolution of your image files where necessary. Name your zip/rar file in the following way: YourID_Surnamae_GivenName (e.g. **2298765_Yue_Yong**).

b) Submit your zip/rar file in the LMC module site, by **Sunday, 8 December 2024.**

Late submission will receive penalty in the marking in accordance with the University Code of Practice on Assessment. For each working day after the deadline, 5 marks (out of 100) will be deducted for up to 5 working days. However, the mark will not be reduced below the pass mark for the assessment. Work

assessed below the pass mark will not be penalised for late submission of up to five days. Work received more than 5 working days after the deadline will receive a mark of 0.

5. Backup and Academic Offences

Backup your work. As good practice, you should always make sure that your work is securely backed up.

<mark>This assignment is individual work</mark>. **Plagiarism** (e.g., misrepresenting another's work or concept without proper acknowledgement and citation of the sources) and **collusion** (unauthorised collaboration or co-operation with others in preparation and production of assessment work) are serious academic offences. **Academic offences** will be dealt with in accordance with the University Code of Practice on Assessment.

6. Guidance to Marking

Students may be required to <mark>attend an interview</mark> to explain their work if deemed necessary for effective assessment of their submission.

In the following table, each category builds on the requirements contained in the preceding category for assessment.

Category	Requirement
First Class (≥70%)	Overall outstanding work. Very neat program implements effectively relevant graphics techniques covered. Excellent 3D model produced with realistic / real-life content and visual effect. Well-structured and concise written report providing all the required information within the page limit.
Second Upper (60 to 69%)	Comprehensive program that utilises effectively the full range of relevant graphics techniques covered. Good commenting and layout of the program. An impressive 3D model produced with a good range of features achieved by calling appropriate OpenGL functions. A comprehensive and clear report containing all required information.
Second Lower (50 to 59%)	Substantial working program implements a good range of relevant graphics techniques covered. Nice layout and objects in the 3D model. Written report contains all the information of the features and functions of the program including some screenshots.
Third (40 to 49%)	Working program generates a recognisable 3D model with some objects and a limited range of relevant graphics techniques utilised. Written report provides a good overview and describes all the basic information for the work completed.
Fail (0 to 39%)	Some code produced attempts to the use of some graphics techniques covered in the module. No or very limited artefact for the 3D model produced. Written report covers very limited number of the items required in the assignment brief, acknowledging properly sources used if any.
Non-submission	A mark of 0 will be awarded.