GD2P04 **Advanced Graphics for Games**	**Summative Assignment** **Summative 3** **Weightage: 40%**	**Date: 16th Oct, 2018** **Submission Dates:** **13th Nov, 2018** **Time : 12:30 p.m.**

Submission filename:
YYYY-MM-DD – GD2P04 – Summitive 3 **– Student Name.zip**

Technical Demo:

Create an environment in which the following are demonstrated.

1) Add a rain particles system **without** GPGPU. Billboarded quads need to be used.
2) Add toon shader to all of the objects.
3) Add Animated Character with animations for idle, run and jump and make him run on a terrain.
4) Add another particle system, create a GPGPU particle system using compute shaders.
5) Create shadow map and add shadows and cast it on the terrain.
6) Generate procedural terrain using Perlin Noise or Diamond Square algorithm.
7) Create another textured terrain using Tessellation shader and add LOD to terrain.
8) Using Deferred rendering, render a scene with regular 3D objects. Proper lighting needs to be calculated and applied on the objects.
9) Add Motion Blur post processing effect.

Build Quality:
The source code is required to display the following features:

- Compiling code:
  - **Code must build as submitted** in both Debug and Release.
  - No warnings or errors present at Warning Level three for all build targets.
- A folder containing an electronic source code must be included with the submission.
  - Visual Studio 2008/2010/2012/2013 solution file, project file, and source files are required.
  - Required external game resources, libraries and dlls.
  - **All other files must be removed.**

Coding Standards:
The source code is required to adhere to the Media Design School's Game Development Faculty's Coding Standard.

Runtime Quality:
The application must not have the following issues:

- Memory leaks.
- Bugs.
- Crashes.

GD2P04 **Advanced Graphics for Games**	**Summative Assignment** **Summative 3** **Weightage: 40%**	**Date: 16th Oct, 2018** **Submission Dates:** **13th Nov, 2018** **Time : 12:30 p.m.**

Technical Features:
The game is required to demonstrate the following features:

- Appropriate, effective and correct usage of:
  - C++.
  - Shader/Stencil buffer/Texturing
  - OpenGL Pipeline
  - Shaders files
  - Shader variables (getting them and setting them)

Interface Features:
The executable is required to provide an intuitive interface with the following features:

- Clear instructions are provided both in demo and an external readme file.
- Controls are clearly identifiable and intuitive while playing.
- The interface design makes effective use of screen space.
- The demo can be restarted without exiting the executable.

Release Build Zip:
A release build executable must be zipped and included with the submission. This is equivalent to the final build of the game which is about to be mastered for release. Ensure that project settings are set to Release when creating this build.

GD2P04 **Advanced Graphics for Games**	**Summative Assignment** **Summative 3** **Weightage: 40%**	**Date: 16th Oct, 2018** **Submission Dates:** **13th Nov, 2018** **Time : 12:30 p.m.**

Submission Checklist:

Source code folder:

- Solution file (.sln).
- Project file (.vcproj).
- Source files (.cpp, .h).
- Library files, if any (.lib).
- External files such as .ini,.mp3
- **Intermediate files have been removed.**

Release build zip:

- Stand alone executable (.exe) file.
- Readme file (.txt).

Document

The file structure and file names of the submission must follow the file hierarchy listed below. Replace the underlined portions with the appropriate values; italic text identifies the required folders.

YYYY-MM-DD – GD2P04 – Summative3 **– Student Name.zip**
- ***Source – Student Name***
  - **Game Name.sln**
  - …Project and source code, etc.

ASSESSMENT CRITERIA:

Grade D:
- No work submitted **OR**
- Work submitted but the executable does not work **OR**
- The executable works but it does not demonstrate the tasks enlisted

Grade C:
The development of an application that has the following features:
- Add a rain particles system without GPGPU.
- Add toon shader to all of the objects.
- Add Animated Character with animations for idle, run and jump and make him run on a terrain.

Grade B, as per grade C and:
- Add another particle system, create a GPGPU fountain particle system using compute shader.
- Create shadow map and add shadows and cast it on the terrain.

Grade A, as per grade B and:
- Generate procedural terrain using Perlin Noise or Diamond Square algorithm.
- Create another textured terrain using Tessellation shader and add LOD to terrain.

Grade A+, as per grade A and:
- Using Deferred rendering, render a scene with regular 3D objects. Proper lighting needs to be calculated and applied on the objects.
- Motion Blur post processing effect