### CA – UE5 Environment (10%) of Software Engineering Module

### Brief

Create a simple, interactive 3D environment in Unreal Engine 5 (UE5) that incorporates basic features using Blueprints.

### Learning Objectives

* Develop software solutions that demonstrate an understanding of the structures and concepts of an object-oriented programming language.
* Design, implement, test, and debug solutions to common programming problems using an industry-standard IDE.
* Apply appropriate structures and techniques particular to 3D graphics solutions within a commercial game engine.

### Deliverables

Your environment must contain and demonstrate the following basic elements in this order:

* **Variables**: For storing and manipulating data.
* **Events**: To control logic flow.
* **Functions**: Reusable code segments.
* **Loops**: For repetitive tasks.
* **Branches**: Conditional statements like If-Then-Else.
* **Triggers**: Event triggers for user interactions.
* **Object Casting**: To interact between different object types.
* **Asset Importing**: Importing 3D models, textures, etc.
* **Terrain Features**: For the physical environment/**Modelling Tools**: For creating custom assets.
* **UI Elements**: Basic user interface for interactivity.

### Video Walkthrough

Produce a video walkthrough of your environment, limited to 10 minutes. The video should be well-edited and include developer commentary that explains what is occurring and highlights the features you've developed.

### Academic Integrity and Plagiarism

You are permitted to utilize external code resources for the completion of this assignment. However, it is imperative that you explicitly attribute the source of any code segments, libraries, or techniques that were not originated by you. Failure to provide proper attribution will be considered an act of plagiarism.

**Note**: The use of generative AI, including but not limited to AI code generators or AI-based design tools, is not permitted for this assignment. Any projects found to be using generative AI will be subject to academic review.

You may be required to attend an interview to discuss your code.

### Submission Process

You will upload a Word document that includes a link to your video demonstration of your game. Additionally, include a OneDrive link to your zipped game files. The gameplay video must be no more than 10 minutes in length and should contain explanations of the code contained within your game project.

### Breakdown of Grade

* Creativity: 20%
* Environmental Design: 20%
* Functionality: 30%
* Video Playthrough and Explanation: 20%
* Source Control: 10%

Late assignments are subject to the DkIT Continuous Assessment policy, as outlined here.

<https://www.dkit.ie/system/files/continuous_assessment_procedures_document_v4_0.pdf>