

2025-2 Computer Graphics  
**Programming Assignment 3**

- **Create an interactive 3D scene with following requirements:**
  - ✓ **Main stage:** 10+ different 3D models with textures and a skybox using a cube-map
  - ✓ **Lighting:** Phong illumination (ambient/diffuse/specular) and 2+ point lights with different colors
  - ✓ **Scene navigation** (DInput): First-person or free camera control and collision detection on **one** object
  - ✓ **Multi-textures:** 2+ different mapping methods (color, alpha, lighting, or bump, etc.)
  - ✓ **Character animation:** 3+ different motion clips
  - ✓ **Scene information:** FPS, CPU usage, # of polygons, # of objects, screen size
  - ✓ **Sound** (DSound): Background music (looping)
  - ✓ **Multi-scenes:** Title (goal, control instruction, developer info.) → Main (can exit anytime)
  - ✓ **Production report (PDF):** features, implementation issues, difficulties, etc.
  - ✓ Do **NOT** use any resources (models, textures, and sound) used in the class tutorials.
- **Present a project plan** [1 pt]
  - ✓ Contents: overview, main screen (image/sketch), interactions, resources.
  - ✓ Submit a **plan** file (PDF/PPT, limit: **10MB**) to **ClassRoom**.
- **Progress Check** [3 pt]
  - ✓ Demonstrate the progress: **Main stage, Camera navigation, Skybox, Scene information, Sound.**
  - ✓ Submit entire **project** files (ZIP, limit: **300MB**) to **ClassRoom**.
- **Final Demonstration** [6 pt]
  - ✓ Demonstrate the result: **Lighting, Multi-textures, Character Animation, Multi-scenes, Collision.**
  - ✓ Create a **report file** (PDF/DOC, <1 page)
  - ✓ Submit entire **project** and **report** files (ZIP, limit: **300MB**) to **ClassRoom**.
- **Implementation requirements**
  - ✓ Program should be executed in a **x86 (32-bit) Release** mode.
  - ✓ The framework classes can be modified but **cannot** be deleted.
  - ✓ All implemented functions should be executed from the **same** program.
- **Submission instruction**
  - ✓ 프로그램 build에 필요 없는 폴더(Debug, Release, ipch) 및 파일(\*.db, \*.exe)은 모두 삭제.  
(\*폴더 보기 → 표시 → 숨김 항목 → .vs 폴더 → ipch 폴더 및 \*.db 파일 삭제)
  - ✓ 필요한 설명이 있으면 "**readme.txt**"에 기술.
  - ✓ 모든 결과물은 **ZIP** 압축 후 **ClassRoom**에 제출 (\*E-mail로 받지 **않음**).
  - ✓ **Visual Studio 2022 (DirectX 11)**에서 source code가 build 안되거나, 프로그램 실행이 안되면 **0점** 처리.
  - ✓ Source code의 copy시 원본 제공자와 복사자 모두 **0점** 처리.
  - ✓ 제출 시간이 지나거나, 시연(Demo)을 안한 결과물은 모두 **0점** 처리.

- Examples of interactive 3D scenes

