COURSE CONTENT

Course Code	DT2005
Course Title	Lighting and Rendering Pipeline
Pre-requisites	NIL
No of AUs	3
Contact Hours	39 hours studio contact

Course Aims

This course will introduce you to the fundamental processes and techniques of lighting and rendering in 3D, which you will then apply in the creation of original computer-generated imagery to become familiar with the effect that lighting and rendering have upon the emotional ambience of a scene. This learning forms the foundation for further studies in Visual Effects and 3D animation.

Intended Learning Outcomes (ILO)

By the end of the course, you should be able to:

1. Describe techniques used in the lighting and rendering practice
2. Demonstrate fundamental techniques required to create computer graphic renderings
3. Apply techniques and aesthetic considerations to create original computer graphic creative rendering.
4. Present and discuss the application of lighting and rendering to personal computer graphic work.
5. Critique lighting and rendering techniques employed by peers in a constructive manner.

Course Content

The role of Lighting and Rendering
As in photography or film, lighting is a key factor in creating a successful image. Lighting determines not only brightness and darkness but also tone, mood and the atmosphere. In computer graphic (CG) animation, lighting and rendering are the technical and artistic tools used to design the atmosphere and to render the final 2D output of a 3D scene. In this course you will experience a practice-based introduction to the basic techniques of lighting and rendering and its place within the production process.

The Fundamentals of Lighting Design
What makes a good lighting design? Through analysis of a variety of examples from photography, film and animation, you will develop a sense of creative considerations and their role in creating a successful lighting design. Through lectures, practice-based exercises and project assignments, you will learn the fundamentals of lighting techniques, the role of colour, shadows and the creation of atmospheric lighting.

Shading and Rendering
In the context of lighting and rendering of a 3D scene, the materiality of its 3D objects and the

type of rendering algorithm applied are equally important in creating a particular aesthetic. This course will cover the various types of materials, shader formats and rendering terminology. You will learn to understand vocabularies such as diffuse, glossy, specular, raytracing, global illumination and PBR (physically based rendering and shading) and apply such concept to your projects.

Class assignments

Creative projects, which explore fundamental lighting and rendering related techniques. Lectures, tutorials, class exercises and peer/instructor feedback sessions.