



MULTIMEDIA SYSTEM

BITM 1113

ANIMATION (2D & 3D)

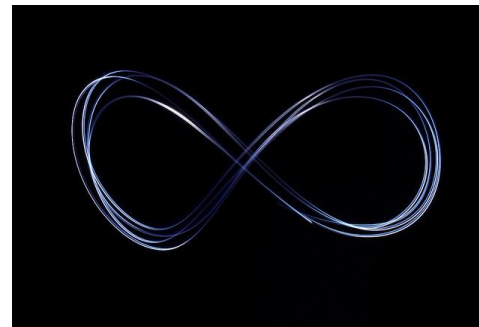
PART 2.2

Dr. Siti Nurul Mahfuzah Mohamad
mahfuzah@utem.edu.my

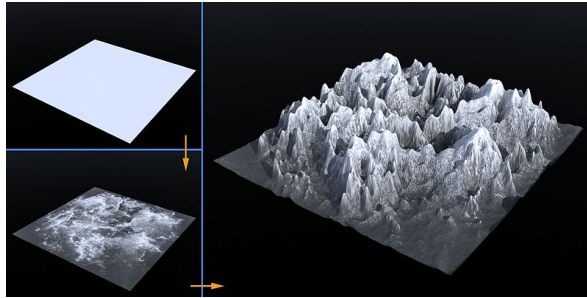
LIGHTING & SHADING

Types of lights sources

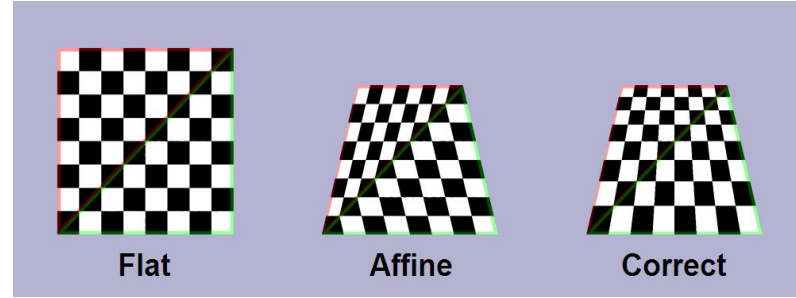
- Point light
- Spot light
- Infinite light
- Area light
- Linear light
- Ambient light



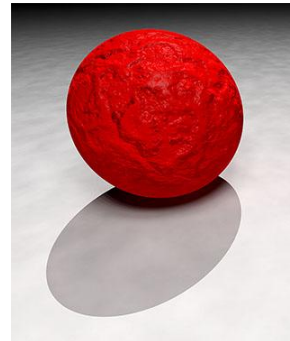
- **Basic components of the light source**
 - Position & orientation
 - Color & intensity
 - Beam angle
 - Glow & cone light
 - Shadows
 - Umbra
 - the portion of shadow that blocks direct light altogether
 - Penumbra
 - the area in the edges of the shadow that blends with other lights in the environment
 - Softness



Displacement mapping



Texture mapping



Bump mapping

REFLECTION

reflection rendering techniques in 3D include:

[Cel shading](#): A method used to look similar the look of animation draw by hand.

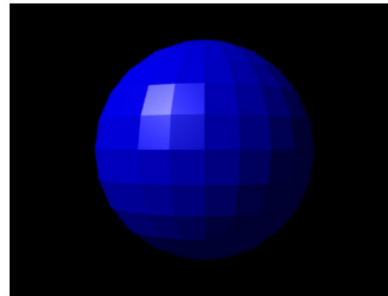
[Flat shading](#): A method that shades based on the polygon's "normal" and the position and light source intensity.

[Gouraud shading](#): an efficient and resource-conscious vertex shading technique use to smoothen the shaded surface.

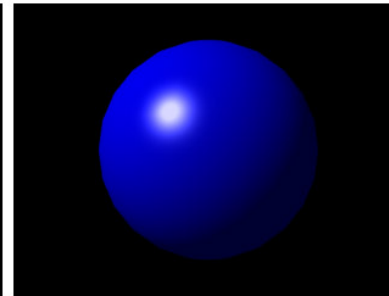
[Phong shading](#): use to simulate specular highlight and shaded surface smoothen.



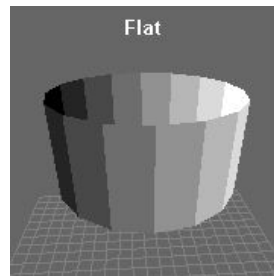
Cel shading



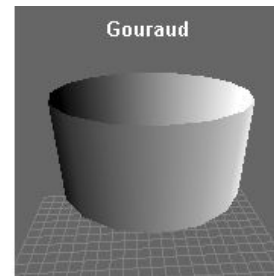
FLAT SHADING



PHONG SHADING



Flat



Gouraud

5. RENDERING (INTEGRATE,RUN,EXECUTE)

- The overall rendering process consists of 5 major steps:
 - Get a model
 - Place a camera
 - Identify light sources
 - Identify surface characteristic
 - Select shading technique
 - Rendering
 - Save file & output

THE END

QUESTION??