

# CART-209 3D Modeling Lecture Notes

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## 13 - Textures

Texture in 3D modeling refers to a file image or a procedural image that maps color and other shading attributes on a 3D surface.

### ***Painted Texture Maps***

Painted either with digital software (like Adobe Photoshop) or with real paint (painted and then scanned to be used as texture maps).

### ***Scanned Textures***

Any digital image can be used as a texture. They can be either scanned files or digital camera pictures. They can provide realism to a surface, or they can enhance abstract qualities (hand-drawn images can be scanned and used for a different look and feel).

### ***Maya Paint Effects Textures***

Use Maya's paintbrushes to create 2D or 3D texture maps

### ***Procedural Textures***

Use a computer program that generates images. Use the Wood Texture program to generate a texture that approximates the appearance of wood. Procedural textures save disk space, but require more time to render so converting them to a "File Texture" is a good idea when possible.

### ***2D Textures***

Flat textures that have length and width. They are measured in UV space.

### ***3D Textures***

Make objects appear as if they are made of solid matter (wood, marble, etc.)

### ***Solid Textures***

They use projection manipulators to define Length, width, and height (XYZ)

### ***UV Mapping***

Surface or projection UV coordinates assign each pixel of a texture on precise locations on a 3D surface.

Use the surface's U and V coordinates to place the texture. They are like the X and Y coordinates that result when you unfold a 3D surface and see it as a 2D image.

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- On NURBS UV coordinates follow the isoparms in a square texture grid (like the latitude and longitude of the globe).
- On polygonal surfaces UV coordinates are created using polygon UV maps. You can create or modify UV maps using Window > UV Texture Editor.

## ***Projection Maps***

Use projection UV coordinates

- They act like real slide projections on 3D surfaces.
- They can be accurately positioned
- Can be projected from perspective view
- Can be converted to 2D in NURBS
- One file can be used for multiple surfaces
- Can be limited to a 3D volume
- Can be tiled seamlessly across multiple surfaces

## ***Modifying Textures***

- Use the Place2Texture node in the Attributes panel to modify the position of the texture on the surface (adjust the Rotate UV parameter).
- Use the Hypertext Editor to create new textures, modify textures, assign, or delete textures.

## ***Studio Exercise***

Getting Started with Maya: Assigning Textures, Using Hypershade Editor, Creating a Texture, Modifying Bump Texture, pp. 404-420