



DIGITAL MEDIA TECHNOLOGY

Course #: DMT 2550 Course Name: 3d Character Development

Autodesk Maya: Polygon Modeling Review

Components

Object: In Maya, any entity in a scene.

Face : In polygonal modeling, the closed space formed when three or more vertices are linked by edges. A polygonal object is a set of connected faces. When these faces form a closed volume, the object becomes a solid model, which can be edited and textured on a per-face basis.

Vertex : In general, a point in 3D space. In polygonal modeling, a corner shared by two or more polygonal faces.

Edge: In modeling, a side or edge of a polygonal model, represented by a straight line between the two ordered vertices that define it.

Commonly Used Polygon Commands:

Properties for any command can be accessed by choosing the square next to the command in the pull down menu.

“Select” Commands

- **Select Edge Loop Tool**
 - *Edge loop* is a path of polygon edges that are connected in sequence by their shared vertices
- **Select Border Edge Tool**
 - *Border Edge* is an edge that lies either on the exterior or interior perimeter of a polygonal mesh.

“Mesh” Commands

- **Combine**
 - You can combine two or more polygon meshes into one polygon object using the Combine feature. The Combine feature assembles the meshes as polygon *shells* in a new polygon mesh node that gets created. The topology of the combined meshes are not modified in any other way.
- **Smooth**
 - Applies additional mesh edges and smooths the selected object.
- **Create Polygon Tool**
 - Lets you create individual polygons by placing vertices in the scene view.
- **Mirror Geometry**
 - Creates a duplicate of the selected polygons mirrored across an axis.

“Edit Mesh” Commands

- **Extrude**
 - *Extrude* pulls new polygons out from existing faces, edges, or vertices, with options to transform and reshape the new polygons as they are pulled out from the selected originals
- **Bridge**
 - You can construct faces between pairs of border edges using the Bridge feature. The resulting bridged faces are merged into the original mesh.
 - Bridge is useful when you need to connect two sets of edges together with a piece of mesh. For example, connecting and merging the wrist on a character’s arm to its hand.
 - Both opposing border edge sections to be bridged together must have equal amounts of edges for the operation to work.
- **Append to Polygon Tool**
 - Lets you add polygons to an existing mesh using a polygon edge as a starting point.
- **Split Polygon Tool**
 - Splits one or more faces on a polygon mesh into multiple faces after you specify the split location on the mesh
- **Insert Edge Loop Tool**
 - The Insert Edge Loop Tool lets you select and then split the polygon faces across either a full or partial edge ring on a polygonal mesh.
 - The Insert Edge Loop Tool is useful when you want to add detail across a large area of a polygon mesh or when you want to insert edges along a user-defined path.

Move Tool Settings: Access move tool settings by double clicking on the move tool.

Snap to Grid: Snaps the active cursor along the defined grid within Maya.

Delete Unneeded Faces: In Face Selection Mode, select any faces that are not required and then select delete on the key board to remove them.