## Option B – Surfacing

A surface is an infinitely thin piece of geometry that acts a boundary. Surfaces can be any shape, such as simple planar shapes like the side of a cube, or very complex shapes such as the ergonomic shape of a computer mouse. Surfaces offer the designers flexibility. You can find the surfaces tool by going to the Surfaces tab and then there will be a variety of tools that can be used to make surfaces.

An extruded surface is a surface you create by taking a 2D sketch and extruding it. An extruded surface has no thickness and it is an infinitely thin piece of geometry. To create the surface, select the sketch and launce the Extruded Surface feature from the Surfaces tab of the Command Manager. Once you create the surface, a surface bodies folder will be added to the feature tree. When making a closed profile sketch use the surface extrude and enter a depth. There is an option to cap the end of the surface extrude which will enclose one of the ends with a surface. You can create a solid body by using the Surface Extrude feature if you enable the “Cap End” option for both Direction 1 and Direction 2. After doing this, the surface body will be converted into a solid body. The geometry is no longer comprised of infinitely thin surfaces.

In order to create a revolved surface, you start with a circular profile that you revolve about the centerline. Select the sketch and launce the Revolved Surface feature from the surfaces toolbar. Then to make the feature the axis and direction will need to be specified and then the angle of degrees.

The Swept surfaces tool allows you to create a surface from a profile and path sketch, just like the swept feature. All of the control options available for Swept Bosses are available for Swept Surfaces, however, the swept surface profile can be open or closed. Using lines that you sketched, launch the swept surface tool from the command manager. Next, select the profile, path, and guide curve. There is also an option to set the orientation twist type, choose the path alignment type, and specify the start and end tangency types.

A surface can be offset using either a surface as a reference, or the face of a solid. The offset surface tool can be found in the surface command manager. To use the offset surface tool you must first specify the surfaces or faces that you wish to offset, enter a value, and press ok. You are able to specify which direction you wish your offset surface to go in using the direction button next to the distance field.

The radiate surface feature creates a surface by radiating the edges of a solid or surface body parallel to a selected plane. To create a radiated surface, first enable the command from the Insert, surface drop-down, and select radiate. In the property manager, all you have to do is select the radiate direction reference, the edges to radiate, and the radiate distance. If you select the top plane for the radiate direction reference, the surface created will radiate in a direction parallel to the top plane.