Lofts in CAD

Academic Resource Center
Objectives

➲ After this quick tutorial you should understand how to do lofts in CAD drawings.

➲ This tutorial uses SolidWorks 2012 Student Edition, but can be followed in AutoDesk Inventor

➲ This tutorial assumes you know some basic CAD
Start by opening up your CAD program and drawing a basic square on the top plane.
Next, we are going to have to make a 3D sketch plane above the top plane. Do this by clicking the 3D plane button.
Select the top plane as the reference for our plane. This tells the program we want the plane to be parallel to the top plane. We can make planes in all sorts of directions with multiple references. But, for now, let's just worry about this plane.
Now set the distance to 5 inches.
Once you click ok, you should see a fully developed plane.
Select the plane, and make a sketch of another square, smaller than the previous one, and centered about it.
Your drawing should now look like this.
Now we're ready to do the loft. Make sure you don't have anything selected, and click the loft button
Now select one corner of one square and the corresponding corner of the other square as the profiles. Congratulations, this is your lofted object!
But wait, there's more!

Lofts are very intricate and the resultant object depends on the profiles we choose. By choosing different corners we can create this twisted cube.
Now let's get fancy.
We will create a guide curve for the lofted surface to be created along. The guide curve will be a 3D sketch, so select the 3D sketch button.
Create a curve between two corners using a three point arc. You can get the curve to line up along the 45 angle by moving the cursor to that line when selecting the arc tip location.
Now do the same loft, but select the curve we just made as a guide curve. You can see that the lofted curve moves along the guide curve.
WHY LOFTS!?  
❖ You might ask. Lofts offer lots of versatility that extrudes and revolves don't have. While they're harder to master, they allow us to make intricate shape and organic curves.
SolidWorks is proprietary software, but AutoDesk Inventor can be found for free on their website:

http://students.autodesk.com/

Remember, CAD is a powerful tool but REQUIRES PRACTICE.