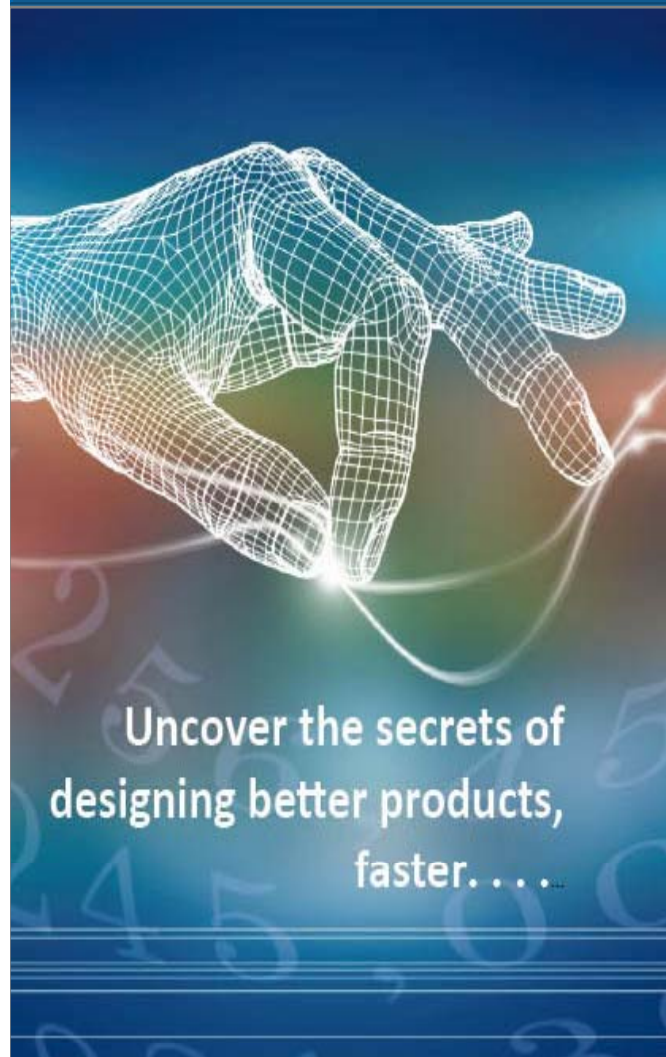




www.camis.pub.ro/eucad/



Introduction to 3D CAD

A Step-by-Step Tutorial For Beginners
on How To Construct A 3D Vase

Prepared by Jonathan C. BORG
MECB Ltd. (Malta)

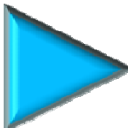
MECB Ltd. (Malta)

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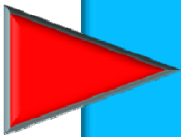
Presentation Outline

- 
- Aim of Exercise
 - Preparation
 - Try it out !
 - Conclusions

Aim of Exercise

- The aim of this simple exercise is to show users totally new to CAD on the concept of how a 3D model can be generated and manipulated. In this exercise, you will create a 3D Vase.
- No previous CAD experience is required;
- The overall aim is to motivate users on the benefits of CAD and to thus learn more;

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Preparation

- For this exercise, you will need to have an evaluation copy of AutoCAD 2005 or 2006 or 2007 installed on your PC. The interface differs slightly.
- Once the software is installed please load the application.

Presentation Outline

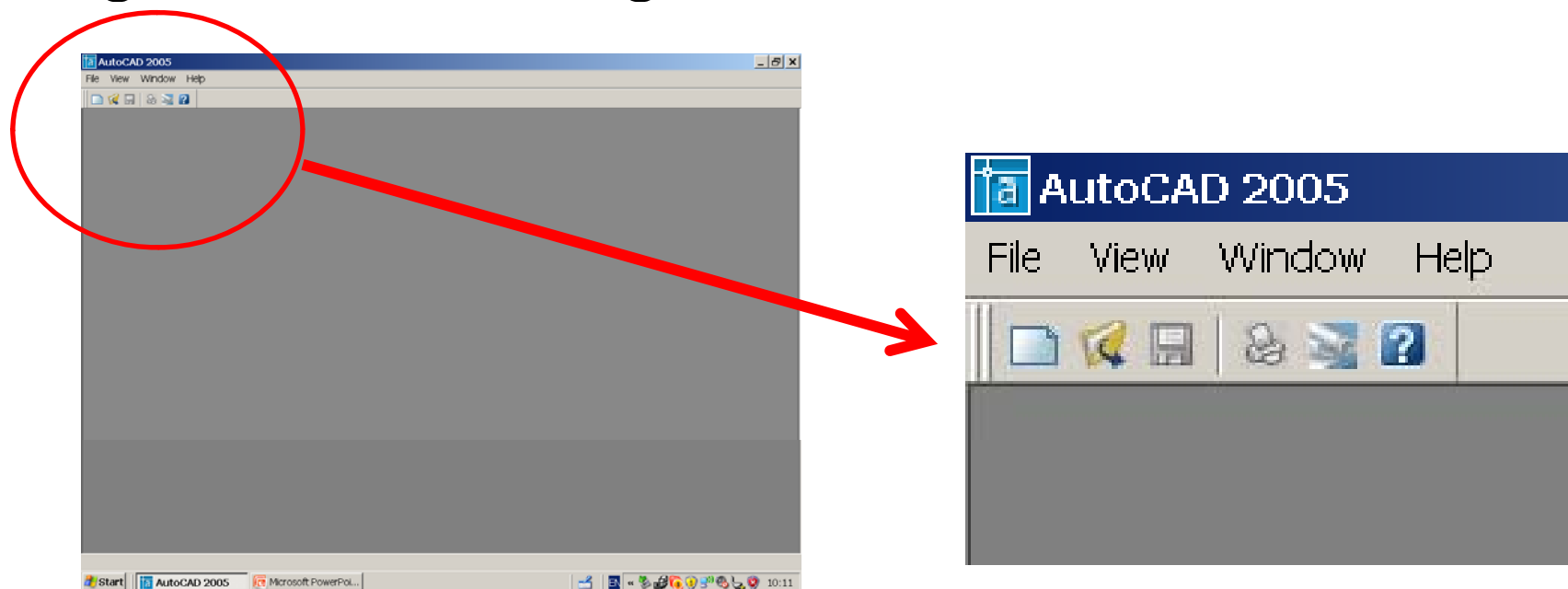
- Aim of Exercise
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Try It Out #1

- For this exercise, you have been a basic drawing ***eucad_3d_teaser.dwg*** which we will use for this exercise. Copy this file onto your *desktop*.
- But first, let us explain a bit the AutoCAD interface (in this example AutoCAD 2005);

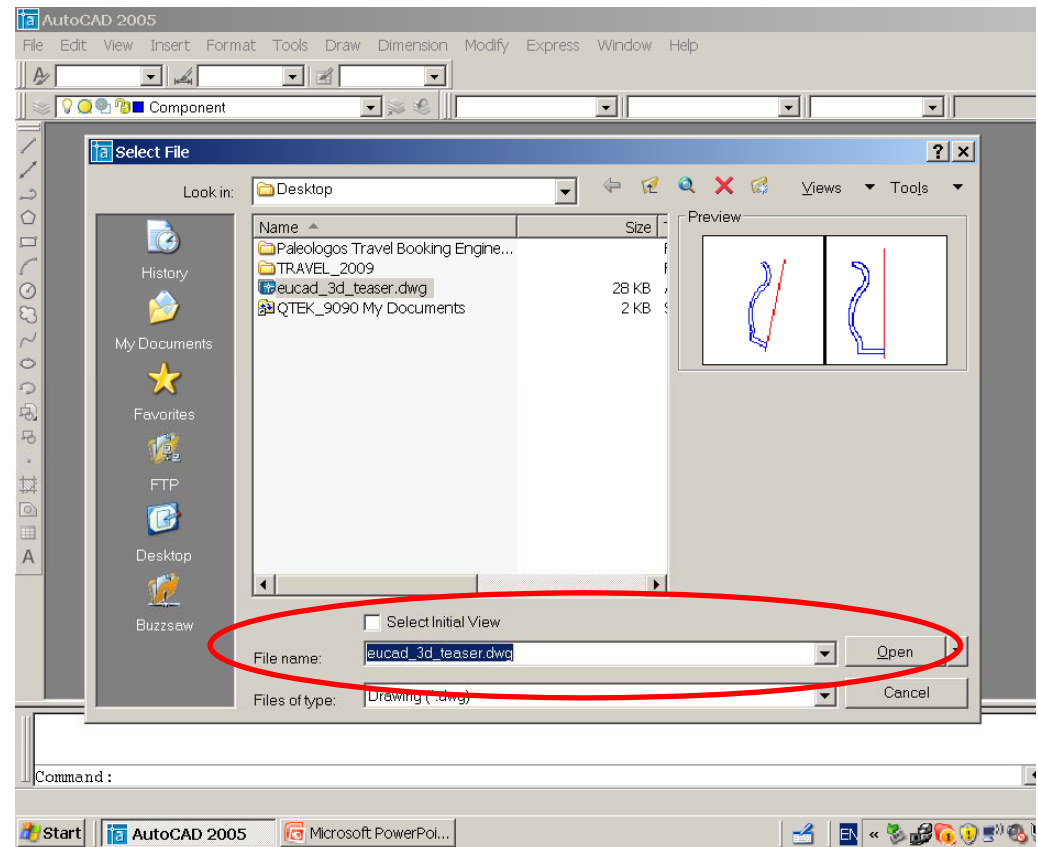
Try It Out #2

- Once AutoCAD 2005 is loaded you should get the following screen:



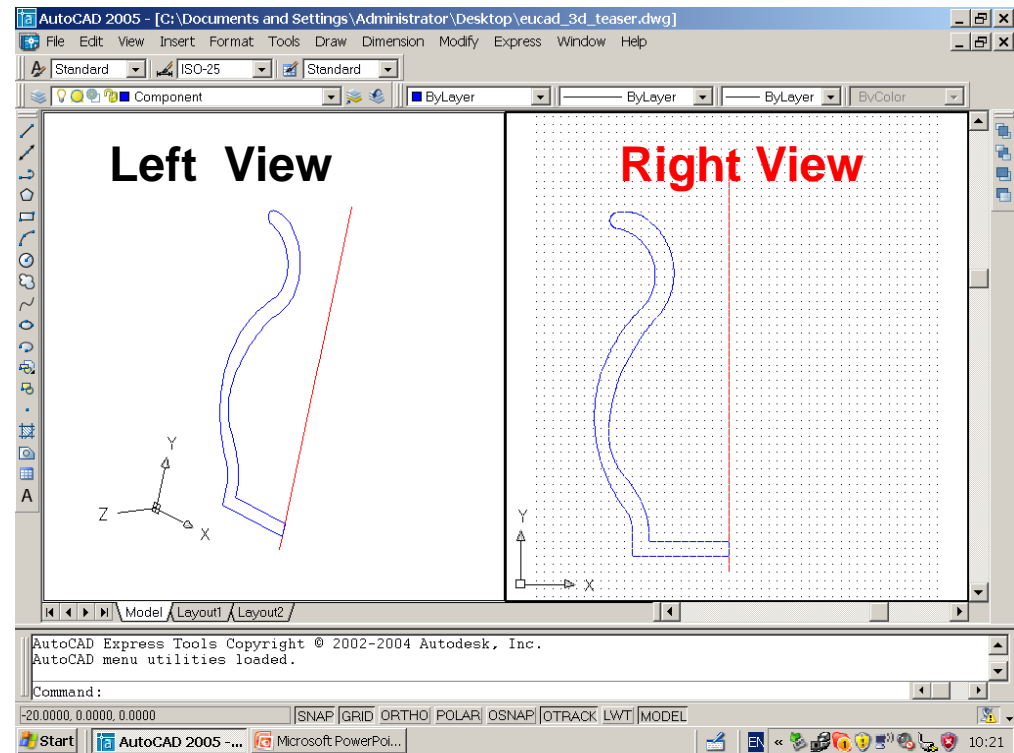
Try It Out #3

- Use the **File** pop-down menu to select and load the drawing supplied called *eucad_3d_teaser.dwg* previously saved on your desktop.
- Press **OPEN** to confirm loading this drawing.

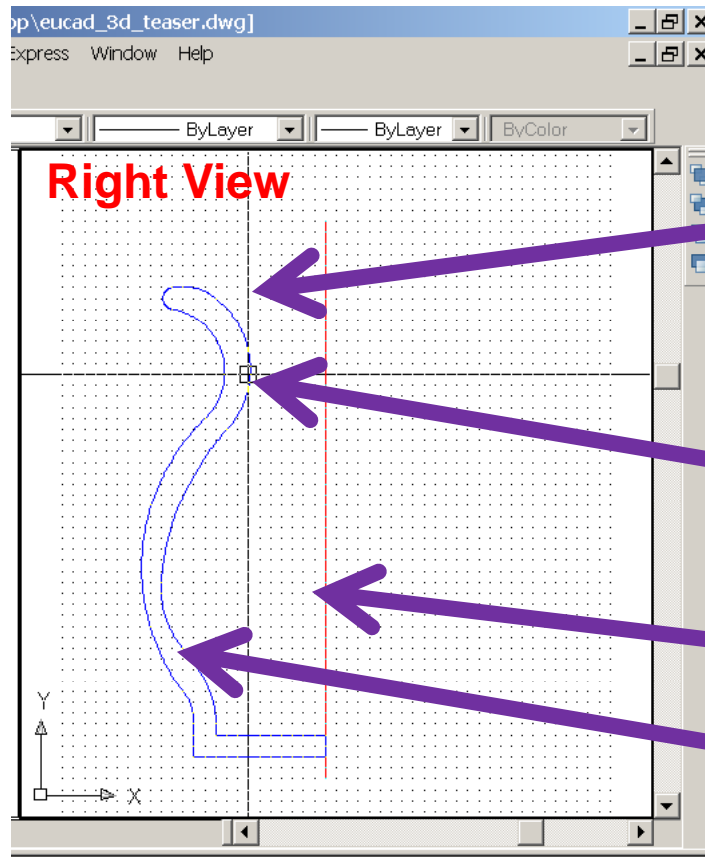


Try It Out #4

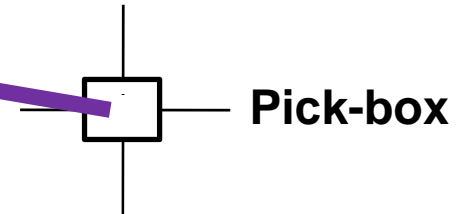
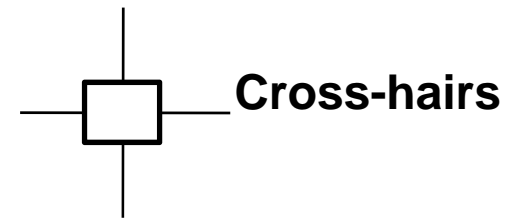
- Once loaded, you should get this working environment. In this exercise, you will work with the Vertical View on the *Right*.
- The *Left View* will be used to show you the resulting 3D model.



Try It Out #5



Terminology used in exercise.

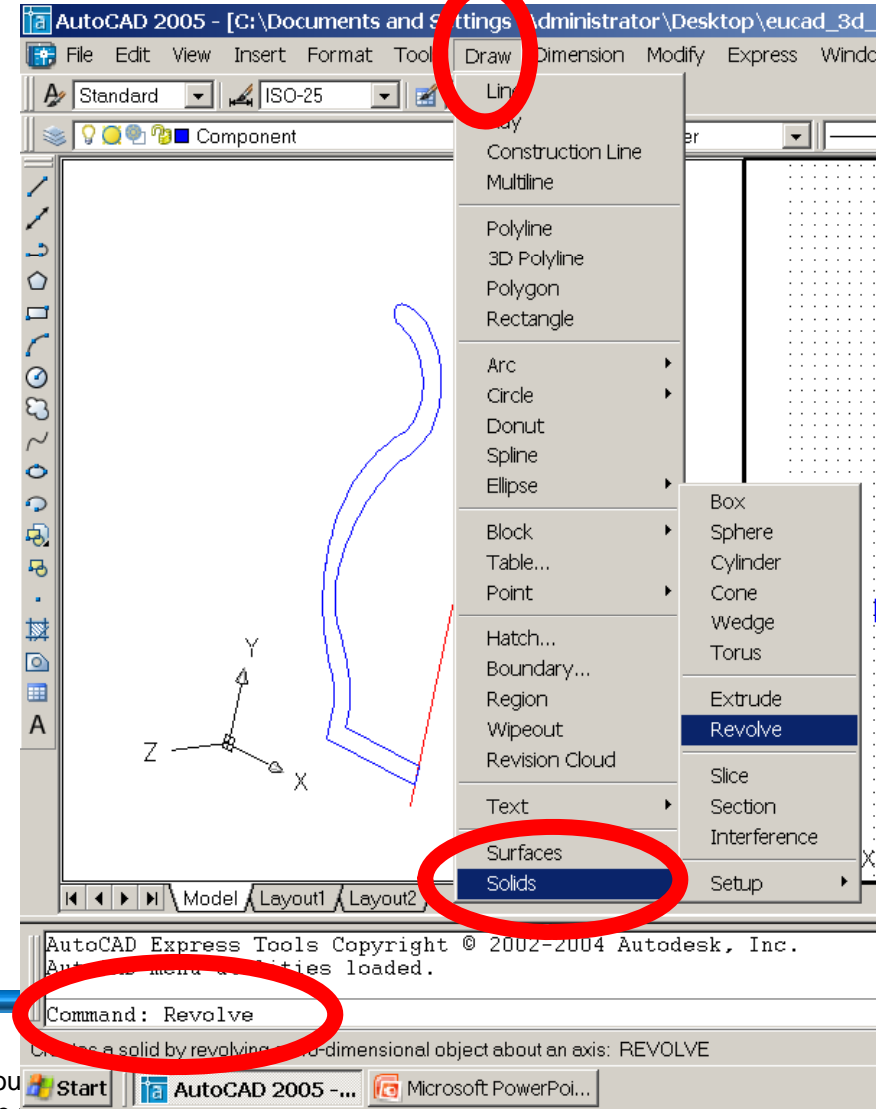


Axis of rotation

Component Profile

Try It Out #6

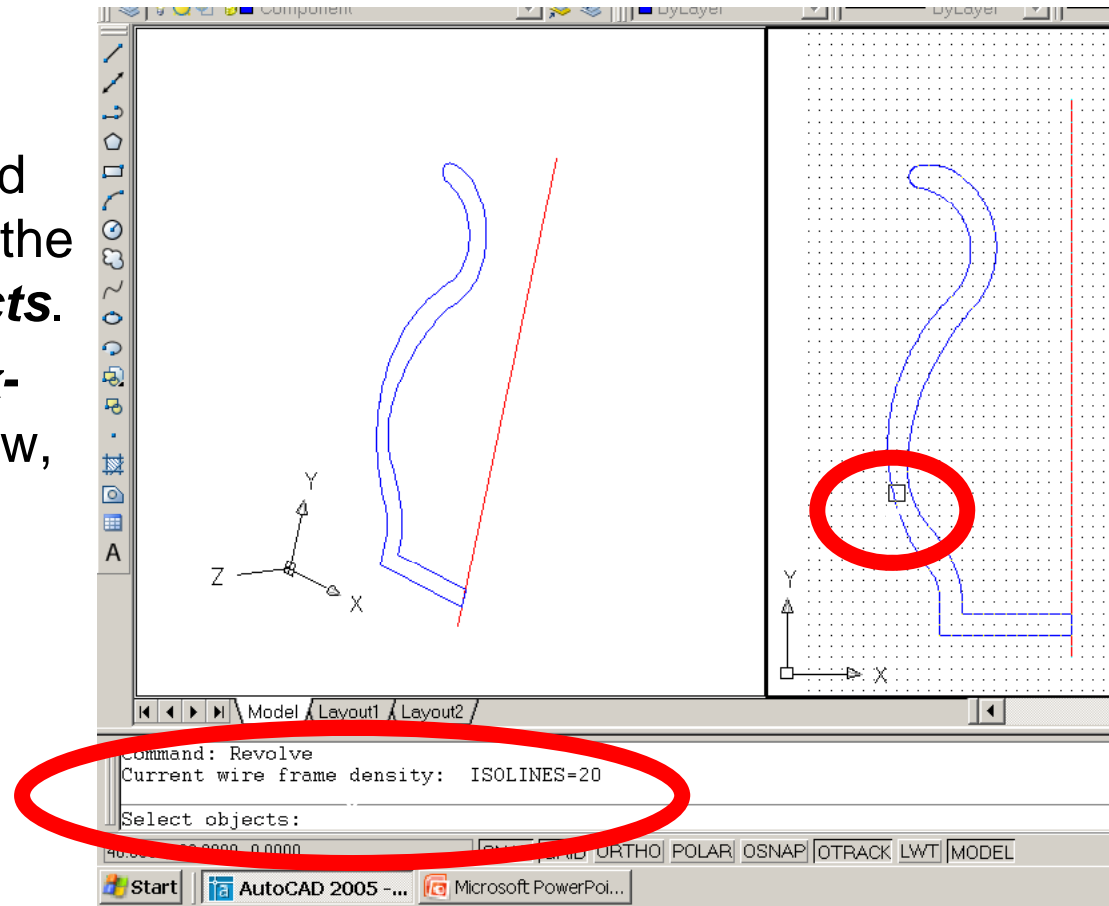
- The concept on which this exercise is based is that we will be rotating a *component profile* (the blue part) around a pre-specified *Axis of Rotation* (the red line) using a 3D command called **REVOLVE**.
- Revolve is found in the **Draw** pop-down menu under **Solids** or else, depending on which AutoCAD version you have, you can type it in the **Command prompt area** and press *enter*.



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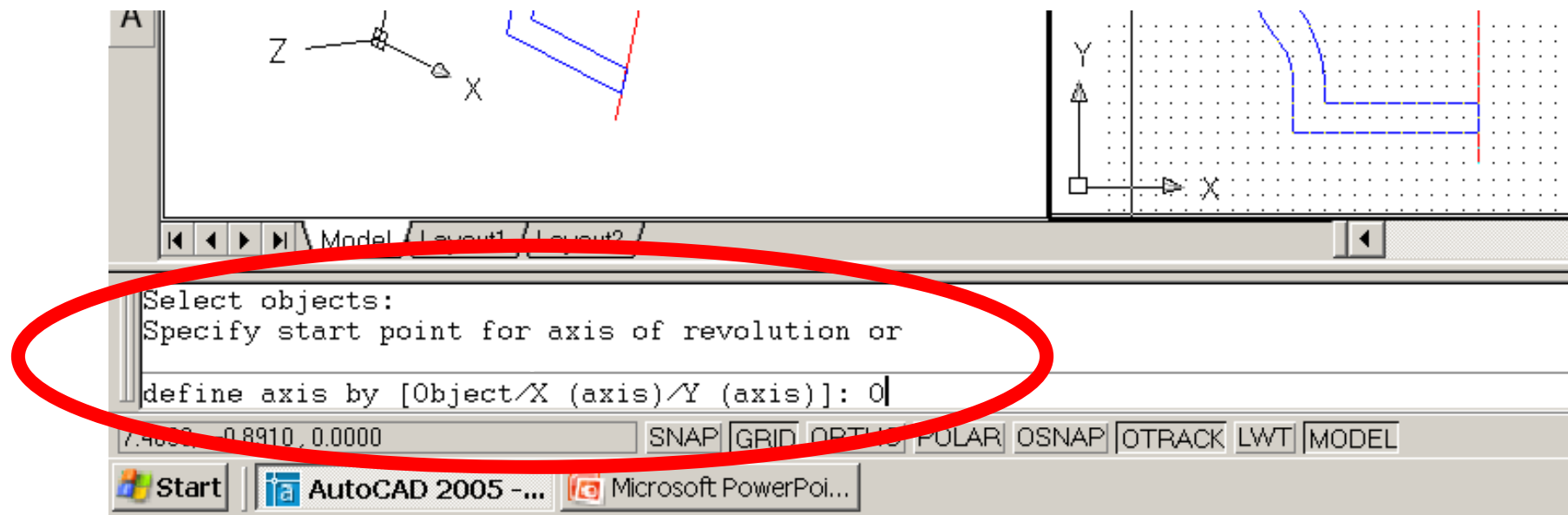
Try It Out #7

- Once **REVOLVE** is activated, in the Command prompt area, you will see the message to **Select Objects**.
- Do so by moving the **pick-up box** in the right window, until it is over the **blue profile**, pressing the **left mouse button** to do so. When you do it will say 1 found and **Select Objects** again. At this stage, just press **Enter/Return**.



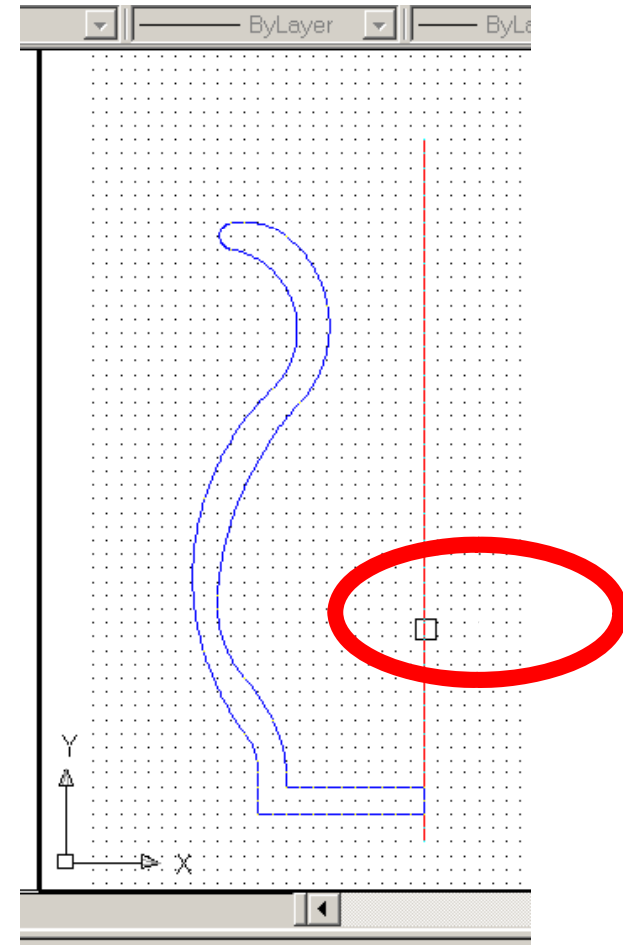
Try It Out #8

- At this stage, you will be asked to **select the axis of rotation** by a number of options. In your case select *Object* by typing **O** and press *Enter/Return*.

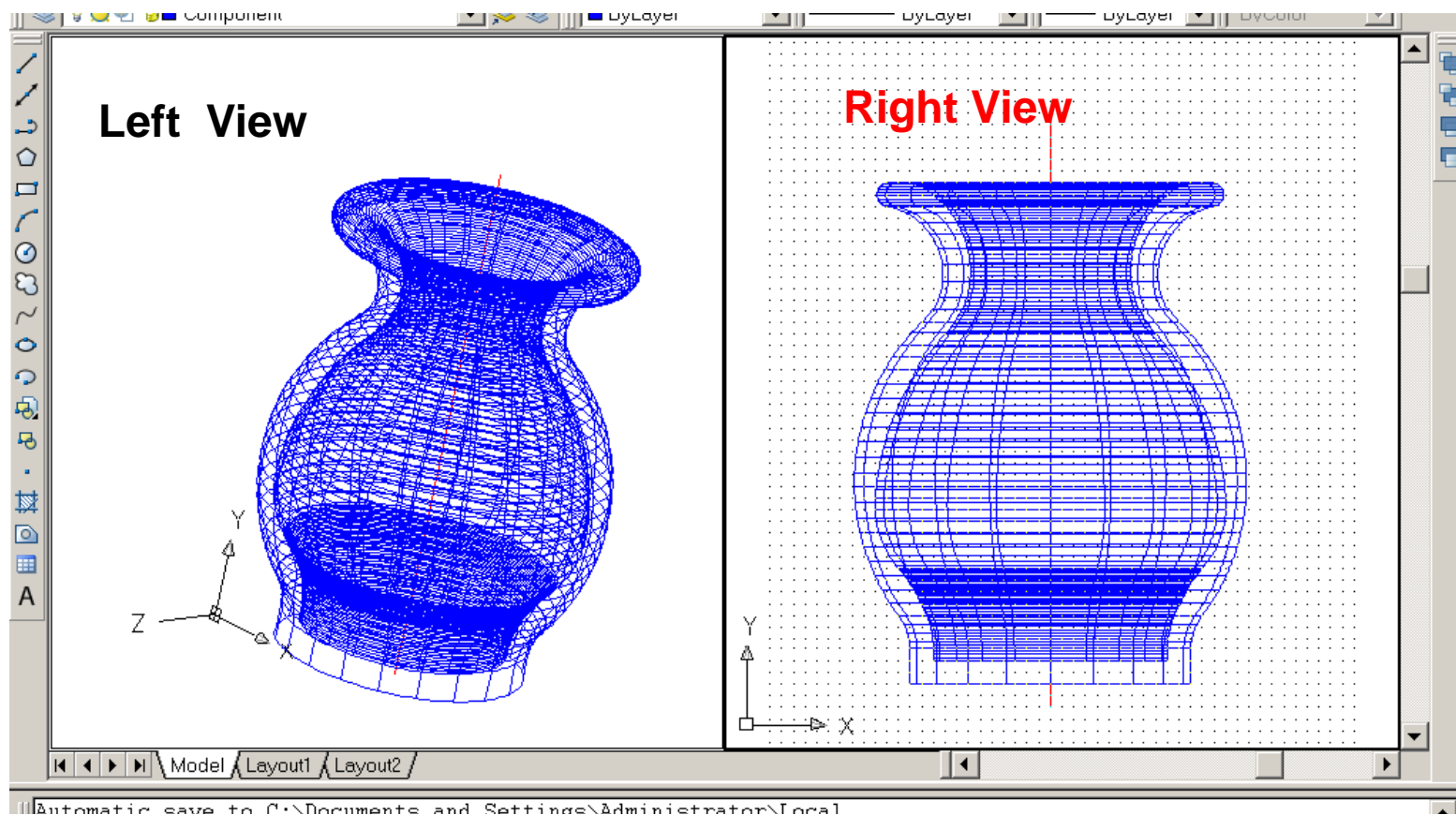


Try It Out #9

- At this stage, you will be asked to **select the object** ie the line which will be used as **axis of rotation**. In your case, move the **pick-box** to anywhere on the **red line** and press the **left mouse button**.
- For **angle of rotation**, enter the value **360** and press **Enter/Return**.
- Once you do so, you should get the result shown in the next slide.



Try It Out # 10

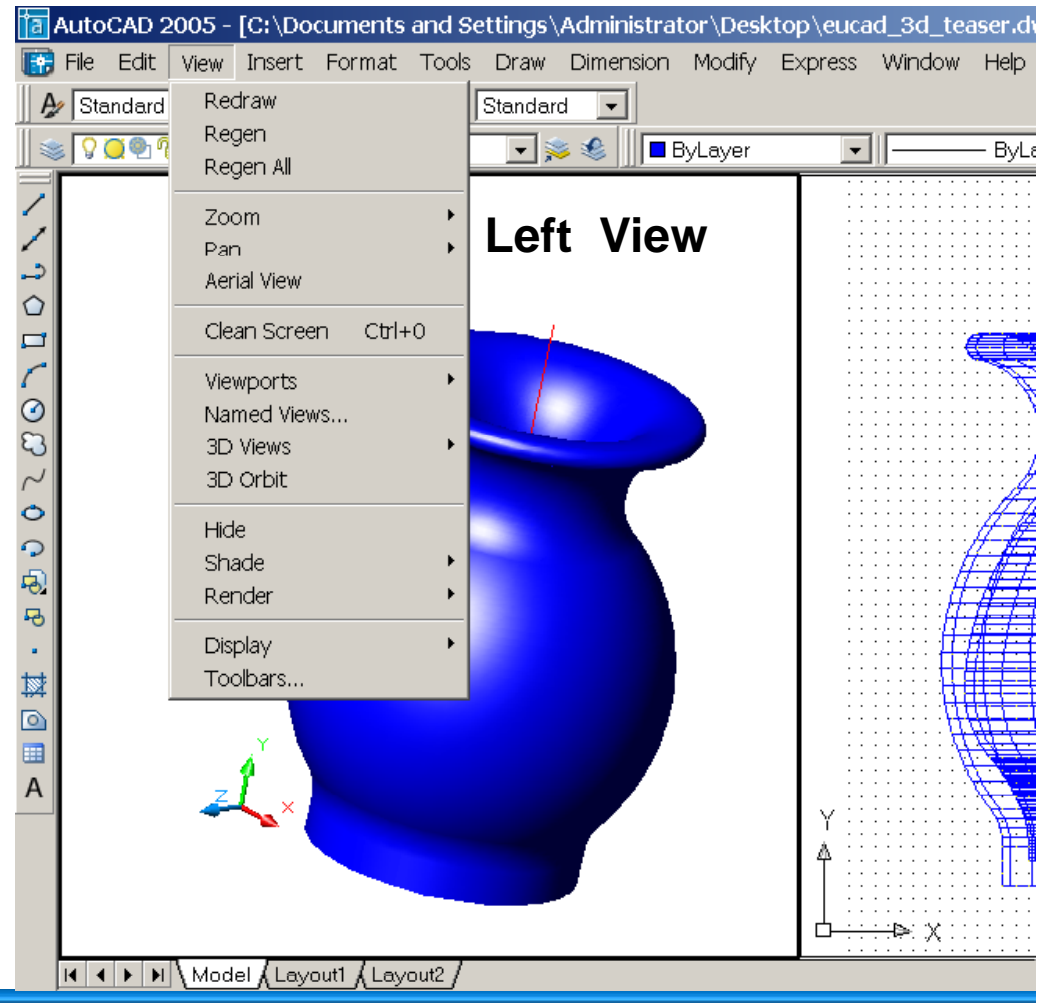


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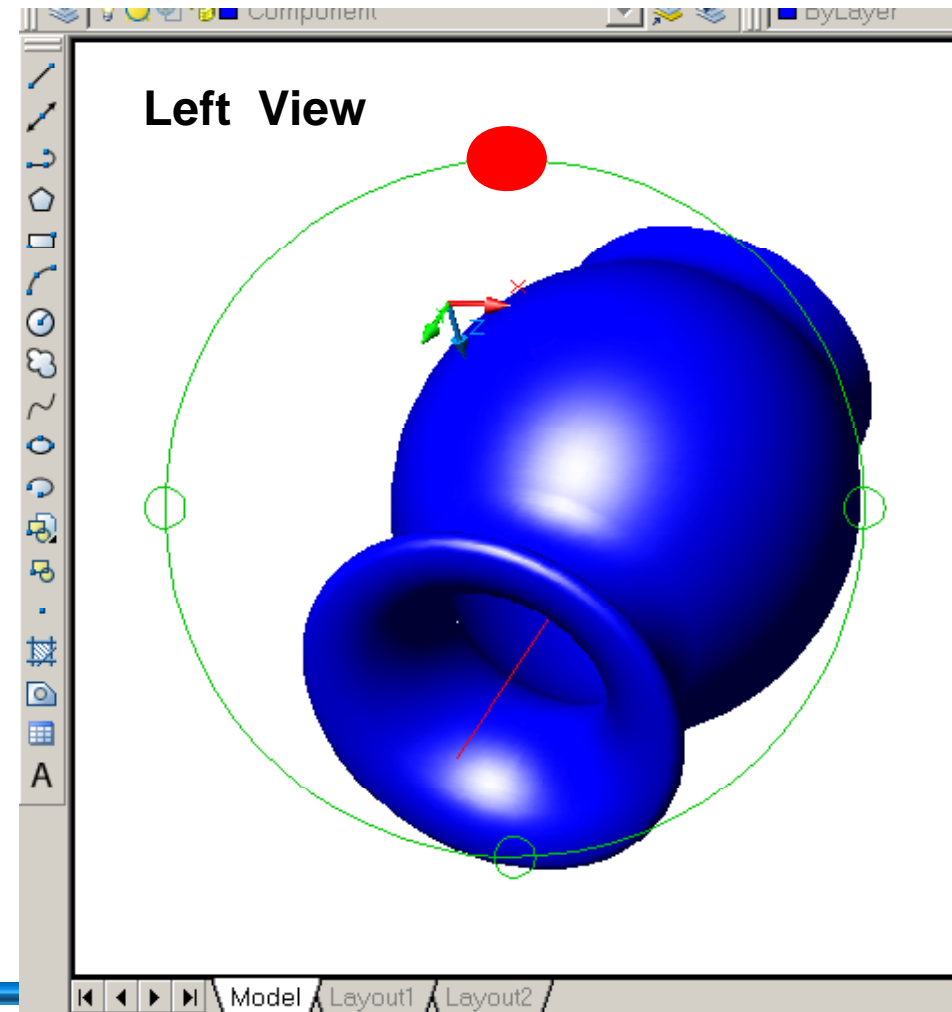
Try It Out # 11

- Congratulations! You have made a 3D vase.
- You can now *manipulate* how you view your model. Move the cross-hairs into the **LEFT VIEW** and click anywhere (press left-button).
- From the **VIEW** pop-down menu, select **SHADE** and for instance choose **HIDDEN**. Try also **Gouraud**.



Try It Out # 12

- You can also *manipulate* from where you view your model. Move the cross-hairs into the **LEFT VIEW** and click anywhere (press left-button).
- From the **VIEW** pop-down menu, select **3D-ORBIT**.
- Go on for instance the top **small circle** and keep on pressing the **left mouse button** whilst moving up, down, left or right.



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Conclusion

- In this exercise you have been given a profile.
- You can also generate any other profile to repeat the exercise.
- To generate a profile, use the PLINE command. See AutoCAD's help for PLINE details.

Take Home Message:

Do not be afraid to experiment with 3D CAD. For help contact the euCAD consortium.