

# GRAPHICS AND ANIMATION

## ASSIGNMENT 1

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### 1 View Ports and Shading

The aim of this assignment is to create multiple view ports to compare different types of representation of objects, namely, wireframe, surface, surface with texture map and texture mapping with Phong shading. This assignment can be completed in any programming language that supports VTK. Use the following files to complete the assignment.

- `apple_obj.obj`: 3D model
- `apple_texture.jpg`: Texture map

1. Read `apple_obj.obj` and `apple_texture.jpg` files using `vtkOBJReader` and `vtkJPEGReader` classes.
2. Create four view ports and render the shuttle object with the shading and representations as shown below. You might want to rotate the object to see the effects of the shading. The texture map can be added using `vtkTexture` class.

*Hint: You might want to compute normal vectors for the shading to work.*

View Port 1 Representation – Wireframe (No shading or texture)	View Port 2 Surface with texture map (No shading)
View Port 3 Representation – Surface (No shading or texture)	View Port 4 Surface with texture map and Phong shading

3. Export the rendered scene to a JPG file. (Refer to the VTK documentation for `vtkJPEGWriter` and `vtkWindowToImageFilter` classes.)

## **1.1 Grading (8 Marks)**

*You are required to submit the following files for this assignment:*

1. A commented code (70%)
2. A JPEG image showing the output (20%)
3. A README file containing details on how to run the code and other information such as VTK version used for writing the code. (10%)

Place your files in a single directory. Zip and submit the file via eClass before February 5, 2019. A penalty of 10% per day will be applied for late submissions.