# Work Plan

## Strategy

I will create a Gantt chart outlining the timescale for the project, breaking the timescale down into further timescales assigning a task name to each subdivision. I will create a separate task list document, which will break down further the segments of work to do.

## Task List

### Weeks 2 and 3

**Complete OpenGL Tutorials: 1-6**This will require working through the OpenGL Tutorials specified above and seeking help if necessary.  
*Estimated Time – 10 days***Create a Storyboard**This will require creating a storyboard and concept design document outlining the requirements of the ACW.*Estimated Time – 2 days***Produce a Task Breakdown and a Gantt Chart**This will require carefully thinking about the scope of the ACW and breaking it down into manageable and time estimable chunks.*Estimated Time – 2 days*

### Weeks 4 and 5

**Paper Design**This will require creating an initial draft of a top level software design of the project. This should be checked with Darren McKie for any glaring errors and obvious design flaws.  
*Estimated time – 1 day***Initial Draft of Script Input Specification**This will require careful analysis of how the script input should work. Will have to write pseudo-code to illustrate how it might be implemented.  
*Estimated time – 2 days***Complete OpenGL Tutorials: 7 - 12** This will require working through the OpenGL Tutorials specified above and seeking help if necessary.  
*Estimated Time – 11 days*

### Week 6

**Design and Implement the Interface to Read the Script Information**This will require working from the initial draft of the script input specification to create the algorithms necessary and integrate into the existing code base; documenting any implementation issues along the way.  
*Estimated Time – 2 days***Prototype the Box Display with Lights**This will require creating a box, with (for example) gluSpheres in the corners of the box, representing the physicality of the lights, before then creating a cone class to replace them. Will also require incorporating the Light class created whilst following the OpenGL tutorials.  
*Estimated Time – 3 days***Complete OpenGL Tutorials: 13-17**This will require working through the OpenGL Tutorials specified above and seeking help if necessary.  
*Estimated Time – 2 days*

### Week 7

**Implement Loading Display of Sphere and Cube**This will require adding the sphere and cube to the script and script parser and coding the two classes (deriving from the generic Shape class).  
*Estimated Time -4 days***Display Using Wireframe, Flat, and Gouraud Shading**This will require a keypress to switch through the display modes (the ‘m’ key).  
*Estimated Time – 1 day***Revised Software Design**This will require documenting the changes in the software design from the original design.  
*Estimated Time – 2 days*

### Week 8

**Allow Animation of Objects and Lights**This will require creating animation paths for the objects based upon the trigonometric ‘sin’ function, and adding them to the script file and script parser instead of hard-coding them. Also allowing the lights to be defined via the script file and giving them the ability to point at and face a designated object.  
*Estimated Time – 3 days***Include Loading of Platonic Solids**This will require writing a file that represents the objects geometrically, or creating classes of the platonic solids (deriving from a generic Shape class) which will contain their geometric makeup.  
*Estimated Time – 2 days***Complete OpenGL Tutorials: 18 – 20**This will require working through the OpenGL Tutorials specified above and seeking help if necessary.  
*Estimated Time – 2 days*At the end of completing Week 8’s tasks I will update the initial top software design from Weeks 2 and 3, and document the object design (giving the name, role and responsibilities of each class).

### Week 9

**Implement Glowball and GLSL for Phong Shading**This will require coding the Glowball (deriving from the Sphere class) which has 6 evenly distributed spotlights on its surface, thus illuminating nearby objects. Also writing the GLSL code for the Phong Shading, this will require extra research and testing tools, the Lighthouse3D website and RenderMonkey tool is a good place to start. And at the end documenting the GLSL code.  
*Estimated Time – 6 days***Complete OpenGL Tutorials: 21 – 24**This will require working through the OpenGL Tutorials specified above and seeking help if necessary.  
*Estimated Time – 1 day*

### Week 10

**Design and Implement Particle System**This will require studying the theory of particle systems (looking at past work done such as my third year project which was based upon particle systems will be helpful), before implementing the particle system (particles of type points and textured quad are a must, scorch marks are optional). Careful consideration of efficiency is a must for particle systems. And also documenting any issues with the implementation as I go.  
*Estimated Time – 7 days*

### Weeks 11 and 12

**Implement Special Effects**  
This will require implementing special effects such as wall shadows, full shadows (shadows cast onto other objects), bloom, fog (with the light beams from the light sources been visible) and any other novel features deemed acceptable that haven’t been mentioned in the ACW specification. Finally submitting the finished code at the end of week 12.  
*Estimated Time – 14 days*

### Week 13

**Complete Portfolio and Write Report**This will require adding any missing items to the portfolio, if any (the portfolio is a continuing effort as the ACW progresses). Also requires the writing of the report which will mean writing class diagrams, activity diagrams, and critiques of the design and algorithms. Also submitting the portfolio work and the report at the end of the week.  
*Estimated Time – 7 days*