Syllabus and directions for the final exam

The material includes almost all the subjects discussed in class, since the discussion about z-buffer algorithm for finding occlusions between objects.

1. Accumulation buffer.
2. lighting
   (a) Ambient reflection
   (b) Diffuse reflection
   (c) Specular reflection
3. Lighting and shading
   (a) Flat Shading (Constant intensity shading)
   (b) Gouraud shading (interpolate between shading in vertices)
   (c) Phong shading
4. ray tracing
   (a) Scan line method
   (b) Two pass object precision algorithm. The Z-buffer method.
   (c) Ray tracing
   (d) Recursive ray tracing. Tree evaluation.
   (e) Volume rendering.
5. Data Structure
   (a) boundary representation

(b) Winged edge representation

(c) Boolean operations

(d) Spatial decomposition

(e) quad tree and oak trees.

(f) Boolean operations on oak trees

(g) Binary space partition (BSP) (including the material spread in class)

   i. definitions

   ii. searching in a BSP: Point location and ray tracing.

   iii. construction of a BSP.

   iv. size of a BSP (worst case vs. average size)

(h) Newtonian particles

6. Radiosity

   (a) Definitions

   (b) obtaining a system of equations (though not necessarily knowing how to solve them)

   (c) iterative methods

7. Parametric representation of curves and Hermite curves

   (a) definition of G_1 and C_1 continuity

   (b) definition of Hermite curves

   (c) computing of Hermite curves