

CS5500 Computer Graphics Assignment 3

Due: 23:59 April 19, 2006 (10% penalty for each day late)

TASKS

1. Start from the `cube.c` example in assignment 1. Modify it to use perspective projection. (Hint: Modify `myReshape()`.)
2. Remove the mouse callback so that the cube will not be spinned when a mouse button is clicked. Then add a mouse motion callback to allow the user to change the eye position by pressing and holding the left mouse button. Rotate the eye position so that its distance to the origin is always 5.0. Set the look-at point to the origin. Then call `gluLookAt()` to update the new view. Remember to post a redisplay event to display the new view.
3. Then add keyboard callback for the 'm' key to print out the current OpenGL projection matrix to the console window. You will need to use `glGet()` to retrieve the projection matrix. Look up the OpenGL references to learn the necessary procedure.
4. Derive your own 4x4 projection matrix and compare it to the OpenGL matrix you printed out in the previous step. Write a C/C++ function to show your equations and print out the results to the console window (for grading purpose).

The full credit for tasks 1 to 3 is 90. Finishing task 4 earns extra 5 points.