MAE 404/598 Finite Elements in Engineering
Programming assignment #7

Write a function to compute the conductivity matrix for a plate with a hole in the center. To generate a mesh, use the function **hole_mesh** that can be downloaded from http://compmech.lab.asu.edu/data/hole_mesh.m. The node and element numbering for this mesh are shown in Figure 1.

The sides of the plates have a length of 250 cm and the hole has a radius of 40 cm. The plate is made of made of aluminum (thermal conductivity k = 205 W/(m·K)).

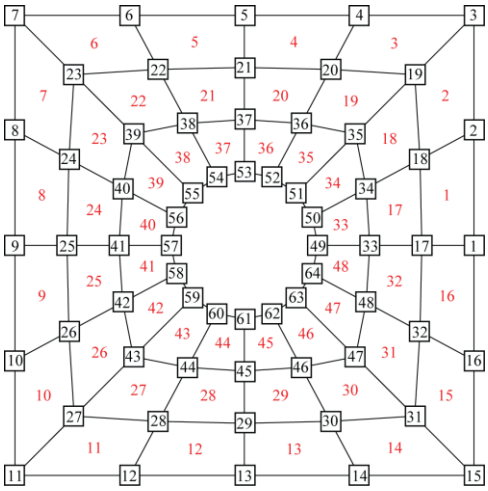

Figure 1 - Node and element numbering of mesh.

Instructions for programming and assignment submission:

- For this assignment, submit only a single MATLAB code named "**asurite_hw7.m**".
- The file **must** define a function of the same name as the file name (but without the ".m") , e.g.

```
function [K] = asurite_hw7(nh)
    % Compute external forces here.
    mesh = hole_mesh(nh, 2.5, 0.4);
end
```

- **Input arguments:** nh: half the number of elements along a side of the plate (in Figure 1, nh = 2).
- **Output arguments:** K: an NxN matrix containing conductivity matrix, where N is the number of nodes.

Your submission will be graded electronically. Failure to comply with the above instructions may result in zero credit.

Submit your assignment to http://sparky.fulton.asu.edu/fe/

Can be resubmitted daily until Thursday, March 24 at 12 midnight.