# CHEN3600 – Computer-Aided Chemical Engineering Spring 2012

# Chemical Engineering Department CQ4

**T.D. Placek Auburn University**

 **CQ4 – Filling an Array with a Numerical Pattern**

DO NOT SUBMIT YOUR SOLUTION!

Create a function file named email\_number\_pattern. The following code should be placed in the file:

function placetd\_number\_pattern

% This is the driver for a function to fill a square array with

% a specified number pattern. You will be writing the required subfunction.

% Set problem data

clear; clc; format compact;

n=6;

x=number\_pattern(n)

n=11;

x=number\_pattern(n)

end

Output for above code:

x =

 1 1 1 1 1 1

 0 2 2 2 2 0

 0 0 3 3 0 0

 0 0 3 3 0 0

 0 2 2 2 2 0

 1 1 1 1 1 1

x =

 1 1 1 1 1 1 1 1 1 1 1

 0 2 2 2 2 2 2 2 2 2 0

 0 0 3 3 3 3 3 3 3 0 0

 0 0 0 4 4 4 4 4 0 0 0

 0 0 0 0 5 5 5 0 0 0 0

 0 0 0 0 0 6 0 0 0 0 0

 0 0 0 0 5 5 5 0 0 0 0

 0 0 0 4 4 4 4 4 0 0 0

 0 0 3 3 3 3 3 3 3 0 0

 0 2 2 2 2 2 2 2 2 2 0

 1 1 1 1 1 1 1 1 1 1 1

Hint(1): In order to write the required function, you will need to REALLY understand the relationship between the rows and columns and the values placed in each.

Hint(2): You will also need to take into account the symmetry that is present.

Solution

function p = number\_pattern(n)

p=zeros(n);

for i = 1 : n

 for j = min(i,n-i+1) : max(i,n-i+1)

 p(i,j)=i;

 end

end

end