Exercise 2 – deadline: 15/2/1402

Filtering in Spatial Domain:

1- Apply each spatial filters to the image according to the below table and compare the original image and the image after using the filter.

section	Filter name	Size of Filter	Image
a	Average(Mean) filter	5 * 5	image1
b	Median filter	5 * 5	Image2
c	Laplacian filter	5 * 5	Image3
d	Sobel(X and Y) filter	7 * 7	Image4

Filtering in Frequency Domain:

2- Apply frequency filters in each case and compare the original image and the image after using the filter:

(a) Apply frequency spectrum with Fast Fourier Transformation (FFT), centered spectrum, decentralized spectrum and inverse FFT on image5 and show them.

(b) Apply Ideal Low Pass Filter (ILPF) and Ideal High Pass Filter (IHPF) on image5 and show them.

(c) Apply Gaussian Smoothing with 3, 5,7and 9 kernel size on image6 and show them.

Morphology Operators

3-In inspection of electronic circuit cards there is a need to inspect the number of holes and the diameter of the holes, ‘holes.jpg’.

We want to measure the number of holes and their diameter using morphology.

Write a report with description of steps in each number and each case and also put the screenshot of the original images and results in the report.
Attach the code.
Make HW2.zip
Upload it in the elearn system.