EEN - 521 Digital Signal and Image Processing

Lab-sheet-4

1) Generate the basis functions of 1-D and 2-D Fourier transform for the assuemd N of your choice.

2) Obtain the Fourier transform pairs for the following images
   (i) Rectangle centered at the orgin
   (ii) Gaussian function
   (iii) Circular disk of unit height and raduis 'a' on origin
   (iv) 2-D impluse

3) Show the importance of phase information of Fourier transform with any two images of your choice.

4) Show the effect of rotating an image by 90° on the magnitude and phase spectrums of the image.

5) Consider an image ($x(n_1, n_2)$) of size $N \times N$ and moving average filter of size $M \times M$ as impulse sequence ($h(n_1, n_2)$), perform the Convolution and find the response with
   (i) Overlap-add method
   (ii) Overlap-save method