



# General Sir John Kotelawala Defense University

## Electrical, Electronic & Telecommunication Engineering

### ET3112 – Image Processing and Machine Vision

#### Practical I - Software Lab on composing a program for the linear filtering

KDU Reg

Intake

Marks

#### Objective

To analyze the linear filters such as Mean filters, median filters and mid-point filters of images using python programming.

#### Procedure

1. Implement python code for the following filters (using python programming language, based on native code)
  - Mean filter
  - Median Filter
  - Mid-point Filter
2. Filtering function should implement an NxN kernel where N=3 should be the default.
3. Use image wrapping for the edge pixels.
4. Programme should automatically read all JPEG files in the home directory and produce an output with the filter name appended and on the same directory
5. Save your program file with the index number the file name
6. Your code should be native and you may use the OpenCV library only to read/write the image file.

Guide following steps when implementing the code.

1. Define python libraries (cv2, numpy, and os)
2. Classify the image filters
3. Define the filter functions
4. Iterate through each JPEG file in the directory.
5. Read the image
6. Create Image filter object
7. Apply each filter
8. Write the output image