

Task 11.1 *Image restoration in the frequency domain*

- a) Write a function that display the Fourier spectrum of an image.

Tip: To get a reasonable Fourier spectrum, you should multiply all the values with 255 and then clip the output image.

- b) Write a function that enhance an image using the following filters:

- Ideal low pass filter
- Butterworth-low pass filter
- Gauss-low pass filter

Tip: There following functions are available in DIPLib.

```
void fourier_transform(const ComplexImage& input, ComplexImage& output)
    Performs a Fourier transform of the complex-image <input> and place it in
    <output>.
```

```
void inverse_fourier_transform(const ComplexImage& input, ComplexImage& output)
    Performs an inverse Fourier transform of the complex-image <input> and place it
    in <output>.
```