

Name: Om Kadam
 Roll No: 45
 Sem: V
 Branch: EXTC
 Year of Study: TE
 Division: A
 Batch: TA-3
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Problem Statement: Design a digital FIR LPF using Rectangular, Hanning, Hamming and Blackman Window

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In [1]: # Importing in-built libraries of python
import numpy as np
import matplotlib.pyplot as plt
import scipy.signal as signal
  
```

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In [2]: # Design of FIR LPF using Rectangular Window
N = 51 # Type - I
b = signal.firwin(N, cutoff = 0.75, window = 'rect', pass_zero = True)
a = 1
print(np.round(b, decimals = 2))

[ 0.01 -0.    -0.01  0.01 -0.01  0.    0.01 -0.02  0.01 -0.    -0.01  0.02
 -0.02  0.    0.02 -0.03  0.02 -0.    -0.03  0.05 -0.04  0.    0.07 -0.16
  0.22  0.74  0.22 -0.16  0.07  0.    -0.04  0.05 -0.03 -0.    0.02 -0.03
  0.02  0.    -0.02  0.02 -0.01 -0.    0.01 -0.02  0.01  0.    -0.01  0.01
 -0.01 -0.    0.01]
  
```

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In [3]: W, h = signal.freqz(b,a)
h_db = 20 * np.log10(abs(h))
plt.figure(figsize = (10, 4))
plt.plot(W/max(W), h_db)
plt.grid()
plt.title('Om Digital LPF Rectangular', fontsize = 15)
plt.xlabel('W', fontsize = 12)
plt.ylabel('H(w)', fontsize = 12)
  
```

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Out[3]: Text(0, 0.5, 'H(w)')
  
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