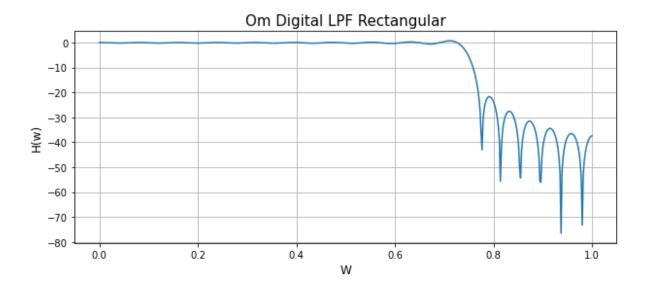
```
Name: Om Kadam
Roll No: 45
Sem: V
Branch: EXTC
Year of Study: TE
Division: A
Batch: TA-3
Date: 31/08/2023
Time: 14:00
```

## Problem Statement: Design a digital FIR LPF using Recntagular, Hanning, Hamming and Blackman Window

```
In [1]:
        # Importing in-built libraries of python
         import numpy as np
         import matplotlib.pyplot as plt
        import scipy.signal as signal
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)
        print(np.round(b, decimals = 2))
         [ \ 0.01 \ -0. \ \ -0.01 \ \ 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 \quad 0. \quad -0.02 \quad 0.02 \quad -0.01 \quad -0. \quad \quad 0.01 \quad -0.02 \quad 0.01 \quad 0. \quad \quad -0.01 \quad 0.01
         -0.01 -0.
                      0.01]
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)
        Text(0, 0.5, 'H(w)')
```

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