

## EXPERIMENT#11

### TO DESIGN BPSK RECEIVER USING MACTHED FILTER

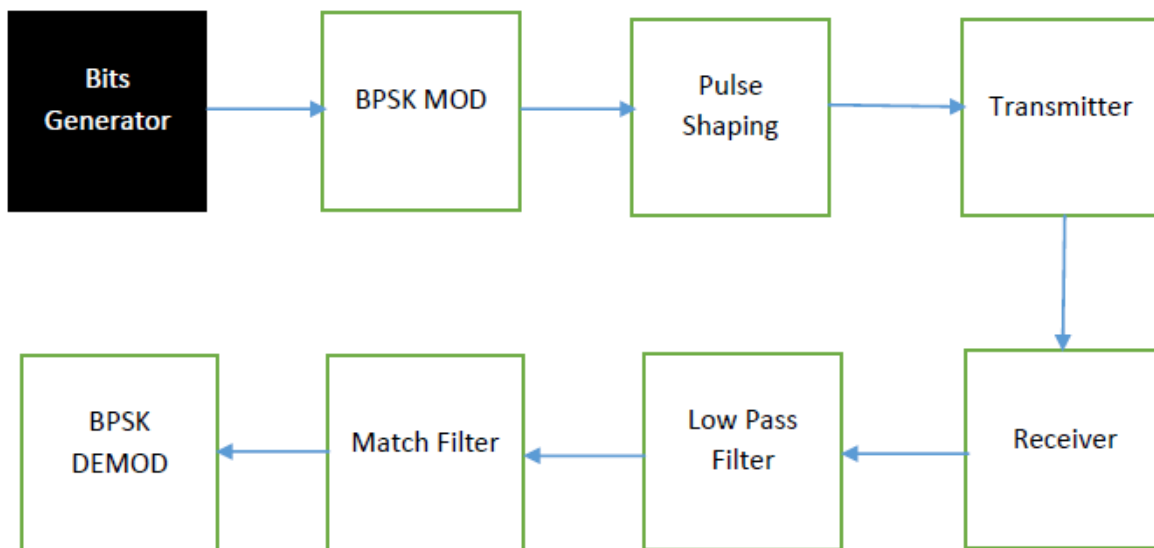
#### OBJECTIVE:

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#### BPSK RECEIVER:



#### RECEIVER:

#### NOISE GENERATION:

In communication system, noise is an error or undesired random disturbance of a useful information signal in a communication channel. It is a summation of unwanted or disturbing energy generated from natural and sometimes man-made sources.

#### LOW PASS FILTER:

A low-pass filter (LPF) is a filter that passes signals with a frequency lower than a certain cutoff frequency and attenuates signals with frequencies higher than the cutoff frequency.

**MATCHED FILTER:**

The matched filter is the optimal linear filter for maximizing the signal to noise ratio (SNR) in the presence of additive stochastic noise. Matched filters are commonly used in radar, in which a known signal is sent out, and the reflected signal is examined for common elements of the out-going signal.

**SIGNAL TO NOISE RATIO:**

Signal-to-noise ratio (abbreviated SNR or S/N) is a measure used in science and engineering that compares the level of a desired signal to the level of background noise. It is defined as the signal power to the noise power, often expressed in decibels. A ratio higher than 1:1 (greater than 0db) indicates more signal than noise.

**SOFTWARE USED:**

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**Lab Task :**

*Design BPSK Receiver using Matched filter in MATLAB, generate its pdf and attach the output.*

**CONCLUSION:**

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## Post Lab Questions

a) What is Signal to Noise Ratio?

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b) A signal is most likely to get effected from noise during which phase of a communication system?

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c) Which command is used to design low pass filter in Matlab?

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