```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%                          Channel_Experment                            %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
clc
clear all
close all
s=90;        % Sourcelänge
snr=2;       % Signal-Rausch-Abstand 0...10dB

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%    Source      %%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

msg = randsrc(1,s,[0 1])

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%    Encoder     %%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

n=3;
k=2;
ENC=encode(msg,n,k,'hamming/binary');

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%    BIT Flipping     %%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

ENC_FLI = ENC;
for n=6:6:size(ENC,2)
    if ENC(n) == 0
        ENC_FLI(n) = 1;
    else
        ENC_FLI(n) = -1;
    end
end

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%       AWGN     %%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

ENC_SNR=awgn(ENC_FLI,snr);

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%    Decoder     %%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

newmsg = decode(code_word,n,k,'hamming')

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%    Anzeige     %%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


source
ENC
ENC_FLI
ENC_SNR
t=1:1:(s+(s/2));
plot (t,ENC_FLI,t,ENC_SNR,'r')
```

```
msg =

  Columns 1 through 16

     0     0     0     1     0     1     0     1     0     1     1     1     1     1     0
0

  Columns 17 through 32

     0     1     0     1     0     1     0     0     0     1     0     0     1     1     1
1

  Columns 33 through 48

     0     1     1     0     1     0     0     1     1     1     0     1     0     0     0
0

  Columns 49 through 64

     1     0     1     0     1     0     1     1     1     0     0     0     1     0     1
1

  Columns 65 through 80
```

```
     1     0     0     0     1     0     1     1     1     0     0     0     1     0     1
0

  Columns 81 through 90

     0     0     0     1     1     1     0     1     1     0


Error using ==> encode at 125
The specified codeword length and message length are not valid.

Error in ==> channel_rev2 at 22
ENC=encode(msg,n,k,'hamming/binary');
```

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