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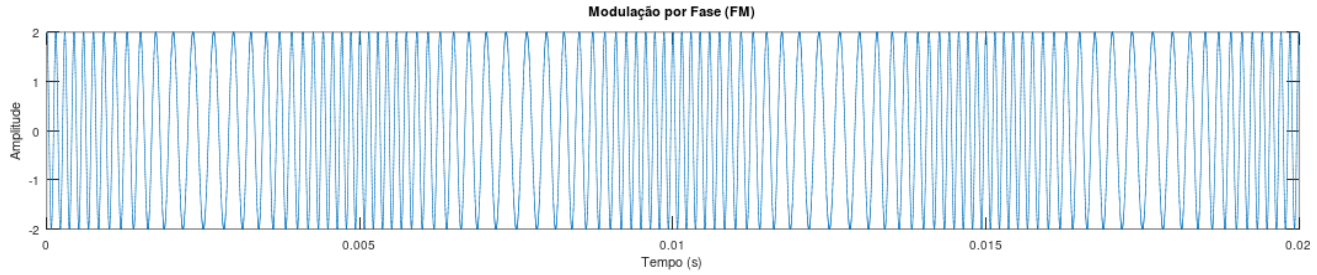
Professor: Ramon Maia Borges

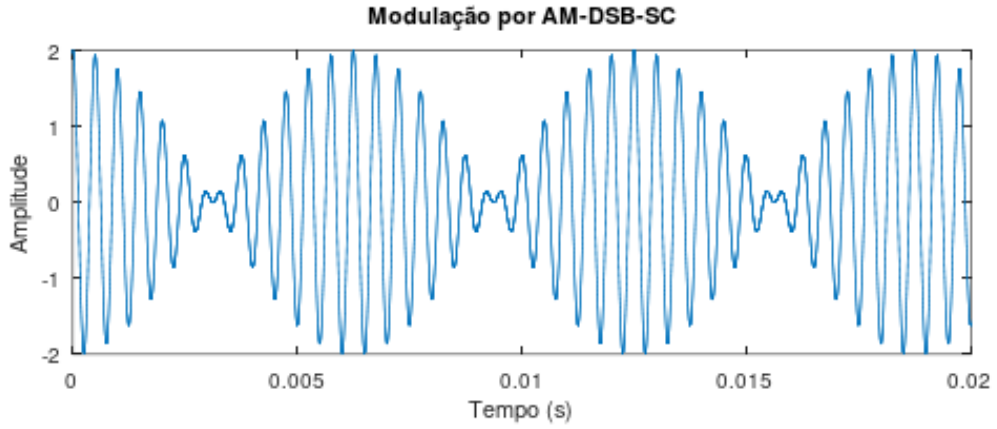
Matéria: TELC11A - Laboratório de Telecomunicações I

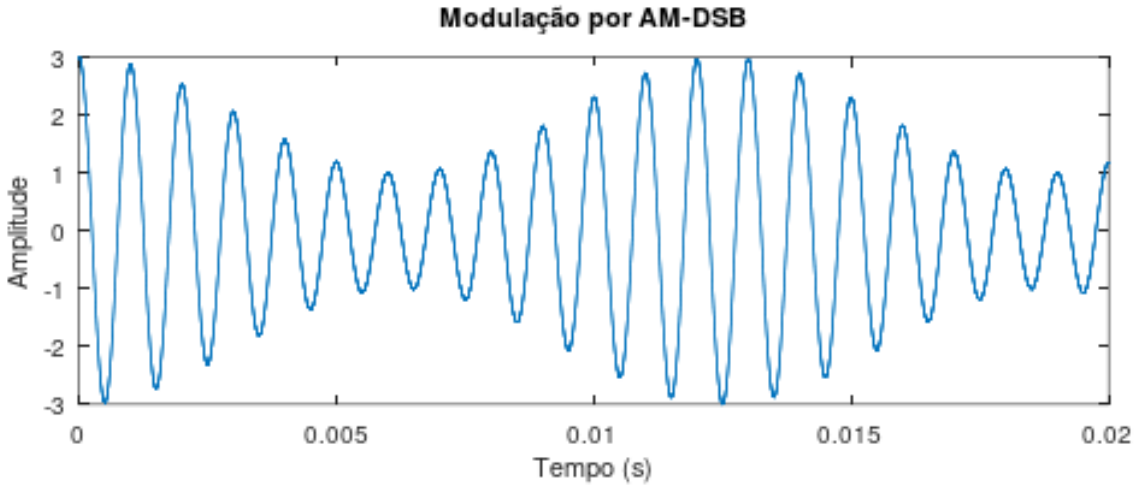
Lab 4: Multiplexação

Exercicio a:

Sinais no domínio do tempo:

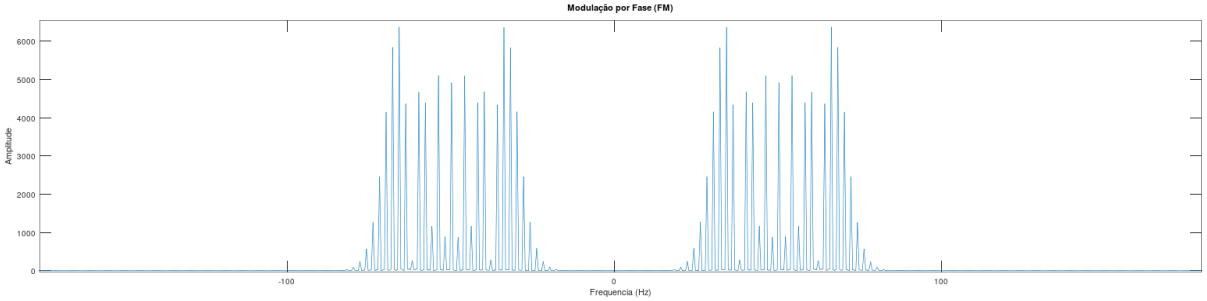




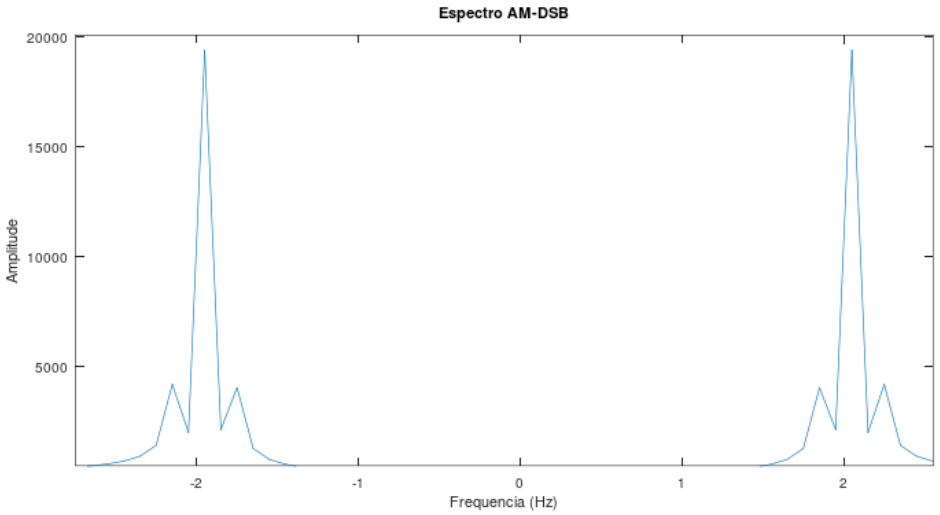


Espectros dos sinais:

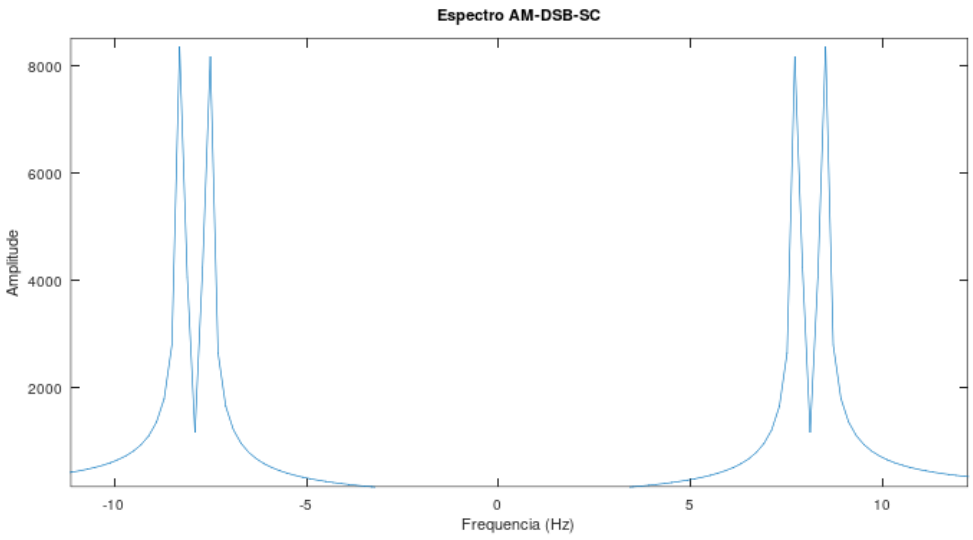
FM:



AM-DSB:



AM-DSB-SC:

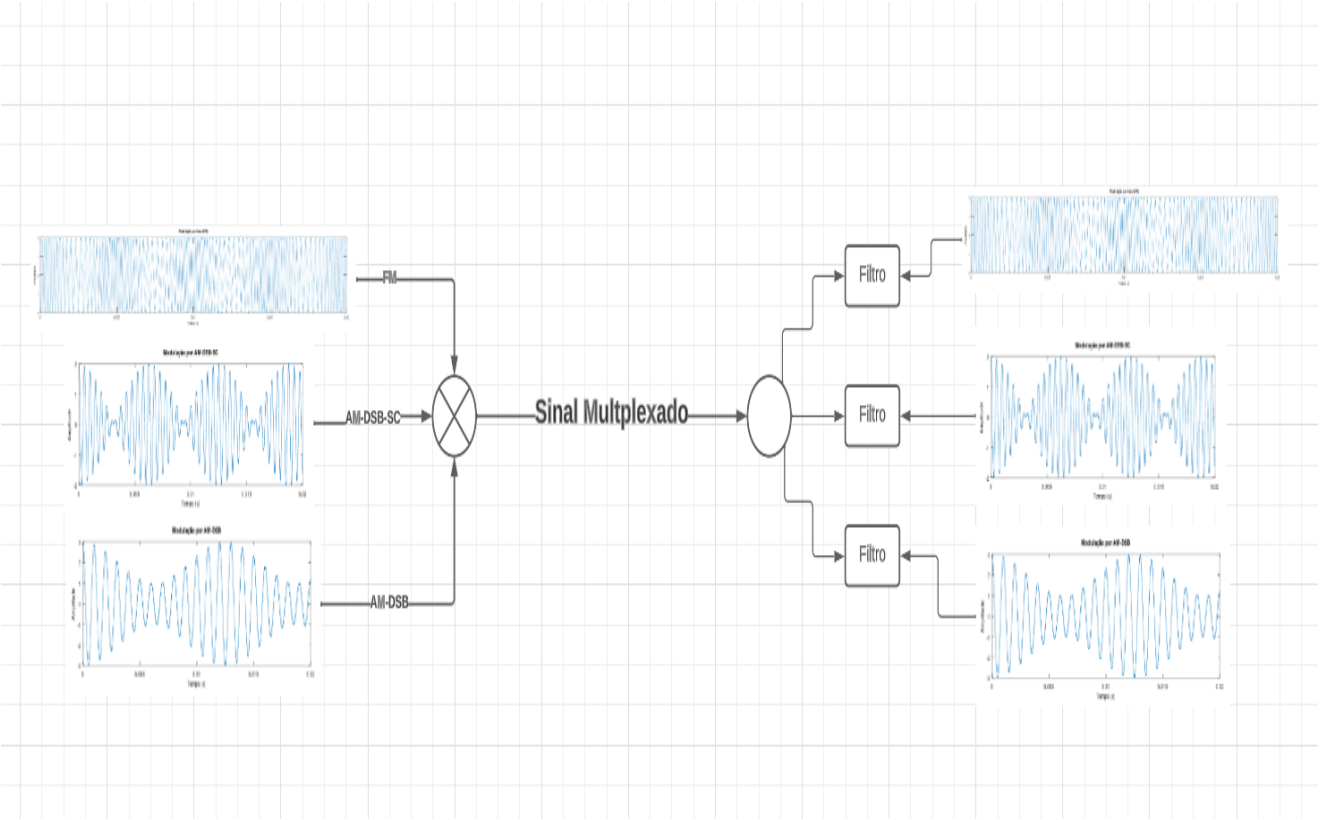


Script desenvolvido:

```
t = linspace(0, 0.02, 20000);
Kf = 2000;
fm_am = 80;
fm_FM = 200;
fc_amdsb = 1000
fc_amdsbsc = 2000
fc_FM = 5000

## Sinais
mt_am = cos(2*pi*fm_am*t);
mt_fm = cos(2*pi*fm_FM*t);
int_mt = 10*sin(2*pi*fm_FM*t);

AM_dsb = 2*cos(2*pi*fc_amdsb*t) + mt_am.*cos(2*pi*fc_amdsb*t);
AM_dsb_sc = 2*mt_am.*cos(2*pi*fc_amdsbsc*t);
FM = 2*cos(2*pi*fc_FM*t + int_mt);

FDM = AM_dsb + AM_dsb_sc + FM;

## Espectros
f_amdsb = linspace(-fc_amdsb, fc_amdsb, 20000);
ff_amdsb = fft(AM_dsb);
ffs_amdsb = fftshift(ff_amdsb);

f_amdsbsc = linspace(-fc_amdsbsc, fc_amdsbsc, 20000);
ff_amdsbsc = fft(AM_dsb_sc);
ffs_amdsbsc = fftshift(ff_amdsbsc);

f_FM = linspace(-fc_FM, fc_FM, 20000);
ff_FM = fft(FM);
ffs_FM = fftshift(ff_FM);

f_FDM = linspace(-fc_FM, fc_FM, 20000);
ff_FDM = fft(FDM);
ffs_FDM = fftshift(ff_FDM);
```

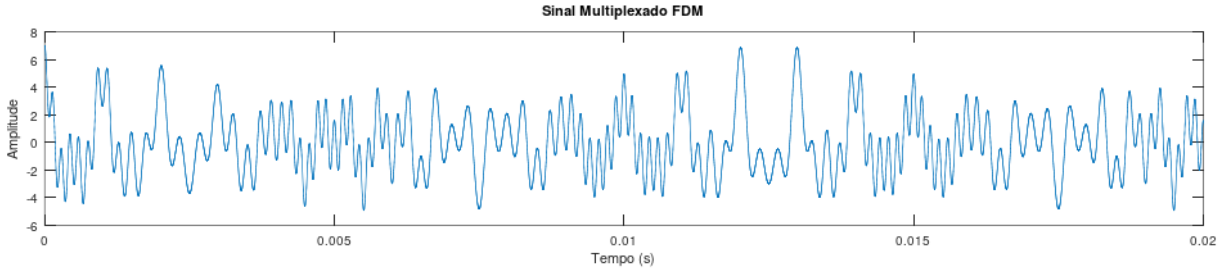
Exercicio b:

Diagrama de Blocos:

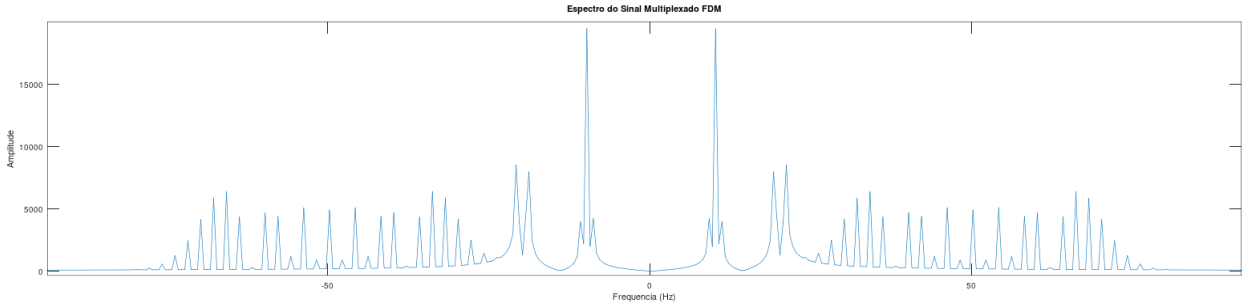


Exercício c:

Sinal Multiplexado no Tempo:



Espectro do Sinal Multiplexado:



Aqui é possível discernir as componentes referentes aos sinais modulados AM-DSB, AM-DSB-SC e FM.