# Multirate Signal Processing

## Seminar 4

To be presented:
even week – 25.06.20
odd week – 02.07.20

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# Homework assignment

a) Implement an FFT filter bank (4 subbands).
   i. Use the same audio signal.
   ii. Divide the signal into blocks of length N=16 and then apply the FFT to each block (you will have 8 subbands in positive and 8 subbands in negative frequencies). This way you get a time/frequency representation, with subbands, like with the filter bank view (Lecture 9, „Block Transforms“).

b) Plot the resulting subband signals in frequency domain. Also plot the frequency response of each equivalent FFT filter in one plot.

# Homework assignment

c) Then apply the inverse FFT to obtain the reconstructed signal. Compare it with the original signal.

**Task 2**

Compare the two filter banks (HW3 and HW4):

- Plot frequency responses of two filterbanks