

SCHOOL OF ELECTRICAL ENGINEERING

Signal Theory: EQ1220 / EQ1210

Reading Assignment: Filtering (3/5) 2013–09–16,

Notice:

To be collected before Lecture 5.

The essay consists of three questions. If you successfully answer all questions, you obtain 1 bonus point for part A of the final exam. An essay with partially correct answers will give you 1/2 point.

For the answers you should not copy text from a textbook. Group work is also not allowed, but feel free to discuss with your fellows. The reports will be checked against plagiarism.

Aim at being concise (max 1-2 pages).

Explain (**in your own words**) ...

1. ... what the cross correlation between two weakly stationary stochastic discrete-time processes is. Give also mathematical definition(s) and example(s).
 2. ... the different mathematical relations between the discrete-time input (assumed to be a weakly stationary stochastic process) and output of a LTI-system. Elaborate in particular on the cross correlation and cross spectrum.
 3. ... the properties of BIBO-stable AR-processes. For instance, you might use figures, numerical examples, concepts such as rational transfer functions or Yule-Walker equations, etc, to describe your understanding of the concept.
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