

Course: Communication Systems
ECSE 4520 - Section 01
Fall Semester 2005

Electrical, Computer and Systems Engineering Department
Rensselaer Polytechnic Institute

Homework 2 - Due Friday, September 23, by the end of lecture.

Problems from required text:

1. Chapter 2 Problem 2.18
2. Chapter 2 Problem 2.31
3. Chapter 2 Problem 2.32 only part 1 (not all three of them).
4. Chapter 2 Problem 2.34
5. Using Matlab, for the signal $x(t)$ described below:
 - (a) determine the power content
 - (b) determine and plot the power-spectral density

$x(t)$ has a duration of 10 seconds, and it has two frequency components: 47 Hz and 219 Hz:

$$x(t) = \begin{cases} \cos(2\pi \cdot 47t) + \cos(2\pi \cdot 219t) & \text{for } 0 \leq t \leq 10 \\ 0 & \text{otherwise.} \end{cases}$$

It is sampled at a sampling rate of 1000 samples per second.

Homework may be handed in early by slipping it under my door or putting it in my mailbox. Late homework shall NOT be graded.

Remember, working in groups is strongly encouraged, however, you must hand in *your own work*.