HW #4 : ECE 444/644 : NDSU : Fall, 2020
DUE: Friday, October 16

You should carefully read Ch. 3 in the book. You should also read or scan Chs. 4 and 5 in the book. You can learn a lot by doing the drill exercises in each chapter – complete solutions to which are available in Appendix C.

1. Book problem 3.2-4.
2. Book problem 3.2-8(b,d,f).
3. Book problem 3.2-18.
4. Book problem 3.3-2.
5. Book problem 3.5-1.
6. Book problem 3.5-5.
7. Book problem 4.2-12.
8. Book problem 4.2-16. Part (b) actually refers to the signal described in the original problem description, not part (a) as stated.
9. Book problem 4.6-2.
10. Book problem 5.8-2.
11. **"Mini Hardware" problem.** Design a circuit that will allow you to connect the line-out of a portable music player to the *unipolar* ADC on our K22F boards. Your design must utilize only parts/components that are available in our parts shop. I have seen both active and passive solutions to this problem. Your write up for this problem should include your design process, calculations, steps, as well as a full circuit schematic (including chip pin connections, etc.). Once your design is done, wire up your circuit to ensure it functions correctly. Jeff Erickson can provide you with a breadboard panel and parts. We will make use of this circuit in later assignments.

    To check off this portion of the assignment, have the following set-up before class on Friday, October 16: play your choice of audio on a music device, run this audio through your circuit to the ADC on the K22F, run the digital wire code, and put the output to a speaker. You should be able to hear your (most-likely aliased) music.