

ENGR-355
Exam II planning

Exam two will focus on hardware and software aspects of the following Micro Controller functional units: ADC, DAC, PIT, interrupt handling.

Exception and interrupt handling is covered in textbook chapter 4 pages 98-108. Review this. Pay attention to NVIC operation and configuration. Know what goes into an ISR.

In textbook chapter 6 pages 152-156 basic concepts of sampling are covered. Given the voltage range of a convertor and the number of data bits used be able to calculate convertor resolution (this applies to both ADCs and DACs).

The DAC is considered in textbook pages 157-159.

Skip the analog comparator. No questions about it.

Pages 164-170 cover the ADC. Review this. You need to be knowledgeable about the registers used to configure the ADC and the functionality that can be selected with these registers. Review the “handout” on setting up the ADC.

ADC information comes from ref[2] starting on page 457 if you wish to look for more info on something. Some particular pages that might be helpful are
pg 457-458 List of ADC features
pg 492 details hardware averaging.
pg500 gives an example initialization sequence. Note that included is calibration. We are ignoring calibration. You do not need to know the calibration details nor user offset setup.

PIT timer details are covered in reference [2] starting on page 573. We are using the PIT in a simple way and that is what you need to know. During lab 4 I handed out example code for setting up and using the PIT. That is posted on the class webpage in the project information section. Review it.

Review my “handout” (its on the class web page) Electrical Design of Digital Logic Circuits. Know how to determine noise margin for particular parts or technology given voltage info. Also, input & output currents & interfacing between parts.

While in class last time we looked at some aspects of the clock generation circuits I will not be asking questions about that on this exam.