CSE3442 Embedded Systems I
Test 2 Example Study Topics

Due to similarity to test questions, no solutions will be provided for these questions.

1. Understand the initHw() function completely as shown in the numerous class examples and be prepared to configure any or all of the I/O pins on the board to be either a digital input/output or for an auxiliary function like UART, SPI, timer i/o, or analog.

2. Understand the differences between synchronous and asynchronous serial interfaces. How can the data be received without a clock? Does the data rate need to be known for synchronous transmission?

3. Configure SSI1 interface for a system clock rate of 25 MHz for master operation at a clock rate of 1 MHz with an 8-bit data format. The slave device is expects that the clock idles in a "high" level and samples data on MOSI on the falling edge of the clock. The slave device writes data on the MISO line on the falling edge of the clock.

4. Be prepared to answer questions related to the graphics LCD display used in class. In particular, fully understand how to set/clear/invert bits in the display and how the character generation is performed.

5. Understand how the analog-to-digital converter is configured to capture a given analog input signal.

6. Understand how sliding average filtering with in-order and circularly indexed FIR filters operates.

7. Fully understand how pulse-width modulation works.

8. Understand why open drain outputs are used to drive the keyboard columns.

9. Fully understand how the interrupt-based keyboard driver works.

10. Be able to describe the operation of Project through the material in Lab 8.

Please make sure you have all relevant pages of the evaluation board manual, datasheets, C calling and register convention document, class notes, and class code printed out before the exam (the sections should be obvious from the class examples, reading assignments, and these test questions). No computers are allowed during the exams as stated in the syllabus. Be sure to bring a calculator.