

# Sfwr Eng 2GA3 Assignment 3

Due: 13:40 Monday Mar. 16, 2020.

All assignments are to be done individually, and handed in at the start of class. Please make sure multiple sheets are stapled together.

**Note:** Please make sure you put your name, student number, and **tutorial section** on the first page of your assignment. Marked assignments will be returned in your tutorial section.

## Written Exercises

Complete the following questions from “Computer Organization and Design: The Hardware Software Interface: ARM Edition”:

### Chapter 2:

- 1) 2.14 (hint: convert each field to binary first with the correct number of bits. Assemble the full 32 bit instruction in binary first, and only then convert to hexadecimal)
- 2-5) 2.16, 2.17.2, 2.4, 2.8
- 6) 2.22 (pseudo instructions such as CMP are discussed on page 129 of text)
- 7-11) 2.25.4, 2.25.5, 2.28, 2.36.2
- 12) Write the LEGv8 assembly code that creates the 64bit constant 0x8877665544332211 and stores that value to register X3.

### Chapter 3:

- 13) 3.23. Hint: for simple fractional parts, you don't have to do complex calculations. Just keep in mind that  $2^{-1} = 1/2 = 0.5$ ,  $2^{-2} = 1/4$  etc. Also, re-read the slides on fixed point representation.