

Carleton University
Department of Systems and Computer Engineering
SYSC 5701 Winter 2014
Operating System Methods for Real-Time Applications

Assignment 3

Assigned: Thursday, Feb. 27, 2014 (Version 1)

Due: Thursday, Mar. 13, 2014, at the start of class (6:05 pm)

Submit: Hardcopy (paper) and email (electronic) copies of your solution.
Please ensure your name(s) and student number(s) appear on your solution.

Goal: further familiarization with FreeRTOS.

There is no programming involved in this assignment.

In your own words, describe how binary semaphores and mutexes are implemented in FreeRTOS. (Do not include counting semaphores.) In the discussion go to the level of the FreeRTOS code relevant to semaphores (i.e. your description should include code snippets from the FreeRTOS semaphore code). Be sure to cover all relevant aspects of priority-related issues and how the code supports the context switching mechanism (without going into the code-level details of how the context switching mechanism is implemented). Include a section that relates your FreeRTOS description to content from SYSC 5701 lectures.

“In your own words” means that you will write the description based on your understanding. Your description will not include passages of text that have been copied from the internet (of course, with the exception of the FreeRTOS code snippets, and possibly SYSC 5701 lecture material).

Submit both a printed copy (at the start of class) and an electronic copy (via email). The printed copies will be graded and returned. The electronic copies will be put through standard plagiarism detection services to verify their originality.