

## **ECE471: Embedded Systems – Homework 1**

**Due: Thursday 8 September 2016, 9:30AM**

For this homework short answers will suffice. There isn't necessarily a right or wrong answer for some of the questions, but be sure to explain your reasoning.

To submit, create a document with your answers (text, pdf, libreoffice, MS Office if you must) and e-mail them to *vincent.weaver@maine.edu* by the homework deadline. Title your e-mail "ECE471 Homework 1" and be sure your name is included in the document.

1. The iPhone 6 has an Apple A8 processor in it. This processor is a dual-core 64-bit CPU running at 1.4GHz, with large L1, L2 and L3 caches. It also has a powerful GPU (graphics unit). Would you classify this device as an embedded system? List 3 of the characteristics given in class for what defines an "embedded system" and say whether the device meets them.
2. You open up a microwave and it has an 8-bit PIC processor in it. This processor runs at 10MHz and the only interface is an LED display, a keypad, and some circuitry to operate the fans and magnetron. Would you classify this device as an embedded system? List 3 of the characteristics given in class for what defines an "embedded system" and say whether the device meets them.
3. The Raspberry Pi B+ contains a BCM2835 SoC. Onboard is a ARM1176JZF-S CPU. What do the letters "JZF-S" indicate about the processor?