

# ECE 4680/6680 Embedded Computing

## Spring 2020

### Objective

This course teaches the principles of using computing in the larger context of a system. The student is expected to enter this class with an understanding of computer architecture, assembler, and proficiency programming in the C (or related) language. Emphasis is given to multimedia data (image, sound) as examples of processing found in an embedded system. In concurrent lab work, each student will design and implement many of the ideas that are found in higher end embedded systems.

Upon successful completion of the course, students will be able to apply engineering principles (design, implementation, testing and debugging) to modern embedded computing systems.

### Text

No text is required. The majority of course material will be provided during lectures.

The course web site is <http://www.cecas.clemson.edu/~ahoover/ece468/>.

### Professor

Dr. Adam Hoover  
313A Riggs Hall  
656-3377  
ahoover@clemson.edu  
office hours walk-in anytime, or by appointment

### Topics

Data in embedded systems (1 week)  
Displays (1.5 week)  
Codecs (2.5 weeks)  
Processor, bus, and platform "flavors" (2 weeks)  
GPU triangle rendering (1 week)  
The boot process (1 week)  
Real-time operating system (1 weeks)  
Proving schedulability (2 weeks)  
Device driver fundamentals (1 week)  
Emerging embedded technologies, chips, and ideas (2 weeks)

### Grading

60% labs, 20% midterm, 20% final  
Midterm and final are presentations/reports  
ECE 6680 students will be given extra work for several labs

### Attendance, Academic Integrity, Access Accommodations

This course follows all the procedures outlined in the ECE Common Course Syllabus.