

CS2261 -- Media Device Architecture

Syllabus

Fall 2015

Lecturer

Bill Leahy

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Office: CCB 105 (Inside 104B)

Office Hours: TBA

TA's

Justin Cook -- Head TA

Kartikay Kini

Larry Smith

TA Contact information will be posted on T-Square

LEARNING OUTCOMES

Purpose

1. Understand how hardware & software architecture affects what is easy and hard to program on a given machine.
2. See programming at the moving bytes around level
3. See what above assembly level byte programming is like (C is an example)
4. See how low level programming is done

Outcomes

(Competency Comprehension) Understand data representation. Be able to convert numbers between various representations: Binary, octal, decimal and hexadecimal.

(Competency Knowledge) Be able to identify the component parts of the Von Neumann Model of computer and be able to explain the purpose of each component.

(Competency Comprehension) Be able to use utilities for conversion of image and sound files into C data structures

(Accomplishment Synthesis) Be able to write C programs that are hundreds to thousands of lines long that manipulate device hardware and perform some logical function such as creating a playable video game.

(Accomplishment Synthesis) Be able to design, write and debug code to perform operations such as:

- Displaying images
- Creating simple animations used in simple bit-mapped games
- Use double buffering for smooth animation
- Using DMA to speed up animations
- Effectively use indexed color, tiles and sprites.
- Starting, stopping and looping sounds
- Reading buttons
- Maintaining and changing state
- Servicing interrupts
- or equivalent*

*Notes: The course is not tied to any platform. The above outcomes are influenced by the current platform but could easily be changed to reflect another choice. They are supplied to give an idea of degree of difficulty.

The course is not designed to train students to be C developers although some may take away information useful in that endeavor.

STRUCTURE

Lecture

MW 3:05 – 4:25

Lab

MW 4:35 - 5:55

F 3:05-3:55

Monday – Quiz (required if scheduled) & Novice Material (optional)

Wednesday – Everyone (required)

Friday – Advanced (optional)

TEXTBOOKS

The C Programming Language -- Kernighan and Ritchie

Programming the Nintendo Gameboy Advance: The Unofficial Guide by Jonathan Harbour

Online via T-Square (GBAProgrammingBook.zip)

TONC – Online via T-Square

ASSESSMENT

Quizzes	20%
Labs	10%
Homework	30%
Milestones	20%
Final Project	20%
Total	100%

COLLABORATION

Collaboration is allowed and encouraged on homework and the projects.

Collaboration is working together to mutually learn course topics.

Collaboration is not copying someone else's assignment and turning it in.

(This includes other students work from prior semesters)

A substantial portion of the projects will be graded via demo.

Quizzes are non-collaborative.

Grading Policies

- Failure to miss a quiz, lab, or the final exam without a valid excuse will result in a zero for the item.
- Missing a demo without a valid excuse will result in a zero for the assignment being demoed.
- All students must attend all final project demos or receive a zero for their final project even if they demo their final project.
- You must contest any grades in question within 2 weeks.
- If there is a problem submitting an assignment email the course instructor and the Head TA as soon as possible.
- Valid excuses are: documented illness, judicial procedures, military service, or official school functions. Documentation must be provided on letterhead with the signature of a physician, supervisor, or other appropriate official. (Ideally you should provide advanced notice if possible for any excused absence.)
- If you have problems or issues such as personal problems, family problems, etc. contact the Dean of Students office. They have a multitude of resources to aid you and they will contact all your instructors.