ECE 361: Computer System Organization

Catalog Description

Teaches intermediate C programming by emphasizing coding techniques for algorithms and data structures. Makes use of gcc, make, the bash command line, and git/Github for developing and maintaining reusable code modules. Provides an introduction to using C for embedded application development.

Credit Hours: 4

Goals

The objectives of this course are to provide students with the fundamental concepts of computer systems and data structures.

Course Coordinator and Committee

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Textbook

Karumanchi. N, Data Structures and Algorithms Made Easy: 5e, CareerMonk LLC and others, 2017, ISBN 978-8193245279 (http://www.careermonk.com)

The course instructor may use a different textbook

Prerequisites

ECE 102 and ECE 103, or CS 161 and CS 162, or equivalents.

Learning Outcomes

At the end of this course, students will be able to:

1. Develop algorithms and write programs using abstract data types and common data structures such as arrays, linked lists, hash tables, and binary search trees.
2. Skillfully use command line program development tools such as the preprocessor, assembler, compiler, linker, shared libraries, as well as basic system utilities such as debuggers and the make utility
3. Use git and GitHub to collaborate and manage the software development process
4. Gain an introductory knowledge of embedded systems

Topical Outline

- Computer organization
- Development tools
- Data structures
- Algorithms

Course Structure and Grading Criteria

Teaching method will primarily be one lecture and one lab each week. The grade will be based on midterms, quizzes, labs, homework assignments, and a final exam or project. The grading criteria may vary with instructor.

Relevant Student Outcomes

The following program outcomes are supported by this course:

(1) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

(2) An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

(6) An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

Prepared By: Christof Teuscher

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