General Information

Instructor
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Schedule
Wednesday, March 19, 2014 - Wednesday, May 7, 2014
Class: Wednesday, 6:00-10:30

Text and supplements

There will also be handouts given during class to supplement the text

Course Description and Objectives

Information systems management is an exciting, dynamic field with numerous areas and applications that can lead to a wide range of challenging and rewarding careers. Information systems process information. In order to be processed, information must be represented in such a way that it can be manipulated by a machine - the computer. This course answers the question, How does a computer work?

All instructions and information on a computer are ultimately represented as a series of binary digits - 0 and 1. Therefore, the computer is a physical device that must be based on binary digital logic. From this logic, physical components (hardware) such as memory and processors are designed. These components must respond to given instructions (software). This course examines the organization and operation of a digital electronic computer from the digital logic used to build the hardware components to the instructions used to manipulate the hardware components. The course also examines general hardware and software components, with a specific focus on the operating system functions. Specifically, this course has the following objectives:

• Provide a basic understanding of how various types of information such as characters, numbers, pictures, sounds, movies, and instructions are represented on a computer system.
• Provide a basic understanding of binary digital logic including the basic
• Boolean functions and how they are used to build useful hardware components such as flip-flops, registers, counters, decoders, encoders, multiplexers, and adders.
• Provide an understanding of the basic organization of a computer system in terms of digital hardware components and how software instructions are executed using the digital components at the machine level.
• Provide an understanding of the fundamental hardware and software components of a computer system.
• Provide and understanding of the differences between application and system software focusing on the functions provided by an operating system such as process management, memory management, and how it performs those functions.
• Research and present information about specific information systems (hardware and software) showing the ability to effectively communicate acquired knowledge pertaining to this course.

Course Topics, Readings, & Assignments (subject to change)

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<tr>
<th>Session</th>
<th>Topic</th>
<th>Assignment</th>
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<td>1</td>
<td>Course overview&lt;br&gt;What is an information system?&lt;br&gt;The basic logic functions</td>
<td>No assignment due&lt;br&gt;Read Chapter 1 and Chapter 2 prior to class</td>
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<td>2</td>
<td>Synthesis of logic functions&lt;br&gt;Creating useful circuits&lt;br&gt;Circuits in a computer system&lt;br&gt;Hardware components of a computer system</td>
<td>Assignment #1 due&lt;br&gt;Read Chapter 3 and Chapter 4.1 prior to class</td>
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<td>3</td>
<td>Building the basic logic functions - electronics laboratory&lt;br&gt;Building useful circuits - electronics laboratory</td>
<td>Assignment #2 due&lt;br&gt;Review electronics handout prior to class</td>
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<td>4</td>
<td>A look inside the computer (cadaver night)&lt;br&gt;The execution of an instruction at the machine level</td>
<td>Assignment #3 due&lt;br&gt;Read Chapter 4.2-4.5 prior to class&lt;br&gt;Project assigned</td>
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<td>Characteristics of an instruction&lt;br&gt;An instruction set - LC3&lt;br&gt;A machine language program - LC3&lt;br&gt;Class exercise - creating a machine language program</td>
<td>Assignment #4 due&lt;br&gt;Read Chapter 5, Chapter 6, and Appendix A prior to class</td>
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<td>6</td>
<td>From machine language to assembly language (to H.L.L.)&lt;br&gt;An assembly language program - LC3&lt;br&gt;Class exercise - creating an assembly language program</td>
<td>Assignment #5 due&lt;br&gt;Read Chapter 7 prior to class</td>
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<td>7</td>
<td>Software components of a computer system&lt;br&gt;The operating system</td>
<td>Assignment #6 due</td>
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<td>8</td>
<td>Project presentations</td>
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Grading

75% Assignment grades (6 assignment grades - average)
   Part I - Comprehensive take-home questions covering any past material and current reading assignment
   Part II - In-class questions, mostly closed notes and book, covering the material from take-home portion

15% Project (150 points)
10% Attendance and participation (100 points)

Scale

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Attendance and Participation Policy

In order to maximize the benefit from this course, full attendance to and participation in all classes is necessary and therefore expected. Attendance will be noted each class session. The attendance portion of your final grade will be determined by the percentage of classes which you attended and in which you fully participated.

Academic Dishonesty Policy

In accordance with Doane's academic dishonesty policy which articulates the college's stance on honesty in the classroom, any act of dishonesty in pursuing the work of this course will be penalized.

First confirmed act of dishonesty:
- Report to Academic Affairs as required by college policy.
- Receipt of a zero (0) for the activity.

Second and subsequent confirmed acts of dishonesty will be forwarded to and handled by the Vice President for Academic Affairs in accordance with policy guidelines.

Remember, collaboration among classmates is necessary and expected as an integral part of the education process. Copying will not be tolerated!