California State University, Sacramento

College of Engineering and Computer Science

Department of Computer Science

**CSc 137** - **Computer Organization**

**Spring 2020**

Instructor: Harvin Singh

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**Catalog Description**

Introduction to computer organization and architecture. Topics include combinational devices, sequential and synchronized circuits, memory organization, CPU architecture and organization, bus structures, input/output, interrupts, DMA, memory hierarchy, introduction to instruction level parallelism, multithreading, and multiprocessing; exposure to hardware security issues. Prerequisite: CSC 28, CSC 35, and CSC 130; 3 units.

**Texts:**

Textbook: Digital Logic Design and Computer Organization-with computer architecture for security, Nikrouz Faroughi, McGraw Hill.

**Grading Policy:**

For grading scale, see details below.

|  |  |  |
| --- | --- | --- |
| Quiz/Homework/Technical presentation | 30% | Subject to change. Also see the Notes below |
| Midterm | 35% |  |
| Final | 35% | Comprehensive |

**Notes 1:**

1. No make-up exams.
2. You are responsible for all the materials presented and announcements made in class.
3. To pass the class you must do satisfactory work in assignments, technical presentation, and exams.
4. No late homework will be accepted. Homework is due at the **beginning** of the class time; homework turned in at the end of the class will not be accepted.
5. Drops after the 6th week will be permitted only with serious and compelling reasons.
6. For Academic Honesty, Policy & Procedures refer to:

[http://www.ecs.csus.edu/wcm/csc/academic/academicintegrity.html.](http://www.ecs.csus.edu/wcm/csc/academic/academicintegrity.html)

**Note 2:**

The assignments will be posted on Canvas. You should check the web site periodically for new items.

We will adhere to all CSUS and CsC department policy and procedures.

**Tentative schedule:**

**Topics Readings Tentative**

**(Selected Sections)**

|  |  |  |
| --- | --- | --- |
| Introduction | Sections 1.1-1.4 | 1 week |
| Combinational logic: Small circuits | Section 2.1-2.4, 2.5.1, 2.6,  2.7.1, 2.7.3, 2.8, 2.9, 2.10  (skip 2.10.4) | 2 1/2 weeks |
| Combinational logic: Large circuits | Sections 3.1-3.3 (skip large  CLA adder), 3.5-3.6.1, 3.83.8.2 | 1 week |
| Sequential circuits: Core modules | Sections 4.1-4.5.3 (skip negative hold time), 4.6 | 1/2 week |
| Sequential circuits: Small designs | Chapter 5 Sections 5.1, 5.2.1, 5.3, 5.4 (selected topics), 5.6.1, and 5.7 | 1 ½ weeks |
| Sequential circuits: Large designs | 6.1 to 6.3 (except 6.3.2), | 1 1/2 weeks |
| Memory organization, technology, and access | Sections 7.1 to 7.4.1, 7.4.4,  7.5.3, 7.5.4, 7.6, and 7.7 | 1 week |
| Instruction set architecture (ISA) | Sections 8.1 to 8.3.3. | 1 1/2 weeks |
| System interconnection | Chapter 9 | 1 hour |
| Memory hierarchy | Sections 10.1 to 10.2. | 1 ½ week |
| Exams |  | 1 ½ weeks |

**Additional Policies**

Read this carefully - I want you to succeed in this class! I will do everything I can to help you.  Please help me to help you do well! By completing assignments on time, staying current with the readings, participating in the class, and doing a good job on your technical presentations, you will not only enjoy the class more, your performance will likely be quite high.  Let's work together to maximize learning!

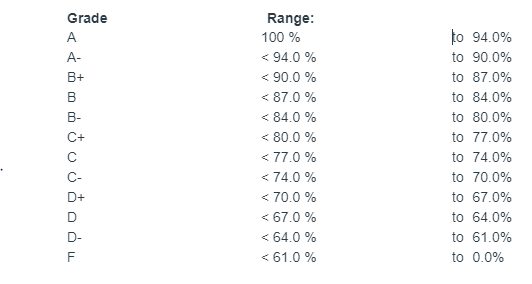
In order to succeed in this course, you are to read the textbook and come to class prepared. We simply do not have time in class to cover every single detail in the textbook – you must read it and either come to my office hours or arrange a meeting time with me to go over any of questions you may have after reading the text and participating in class.

Next, any form of cheating is simply not tolerated in this class. In fact, for this class as well as all of your CSUS classes, you should be familiar with and abide by the CSUS Policy Manual related to student conduct.  To learn more, please see the weblink below:

[http://www.ecs.csus.edu/wcm/csc/academic/academicintegrity.html.](http://www.ecs.csus.edu/wcm/csc/academic/academicintegrity.html)

**I am here to help you succeed! That’s my ultimate goal**.

**Grading scale**



**ECS Career Services:** <http://career.ecs.csus.edu/>

**FYI:** **Basic Needs Support:**

If you are experiencing challenges in the area of food and/or stable housing, help is just a click, email or phone call away! Sacramento State offers basic needs support for students who are experiencing challenges in these areas. Please visit our Basic Needs website to learn more about your options and resources available.<https://www.csus.edu/basicneeds/>

Please note that the spring Engineering and Computer Science Virtual Career Fair will be held on Friday, February 26, 2021. Highly encourage all of you to attend.