## CST 337 Computer Architecture

### Spring 2019 Class Schedule

#### Summary

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Week 0

Module 0 - Preparation and Orientation

Week 1

Module 1.1 - Computing Basics and Breakdown

Monday - NO CLASS
Martin Luther King Day

Wednesday
Introduction to the class
Review syllabus and schedule
History of computers
Layers of abstraction in modern computing
Parts and pieces of a computer and computing
Building blocks of computing electronics

Sunday (11:55:00 PM)
Module 1.1 Assignment Due

Week 2

Module 1.2 - Binary Representations

Monday
Module 1.1 Quiz
Convert binary, decimal, and hexadecimal number representations
Work with negative binary numbers

Wednesday
Class project introduction and teams
Class Project Ideation 1

Sunday (11:55:00 PM)
Module 1.2 Assignment Due
Class Project Ideation 1 Due
Week 3

Module 1.3 - Binary Arithmetic

Monday
Module 1.2 Quiz
Add and subtract binary number
Use 2's complement numbers to streamline calculations
Determine Overflow

Wednesday
Module 1.3 Lab - Introduction to Arduino

Sunday (11:55:00 PM)
Module 1.3 Assignment Due
Module 1.3 Lab Due

Week 4

Module 2.1 - Digital Logic with Transistors

Monday
Module 1.3 Quiz
How transistors work in digital computing
How to build digital logic from transistors
How to build simple circuits

Wednesday
Class Project Ideation 2

Sunday (11:55:00 PM)
Module 2.1 Assignment Due
Class Project Ideation 2 Due

Week 5

Module 2.2 - Combinational Logic

Monday
Module 2.1 Quiz
How logic gates make up the next level of abstraction
How to use truth tables to describe logic behavior
How to use digital logic to perform arithmetic operations
Common combinational logic components

Wednesday
Module 2.2 Lab - Arduino Lab 2

Sunday (11:55:00 PM)
Module 2.2 Assignment Due
Module 2.2 Lab Due

Week 6

Module 3.1 - ALU

Monday
Module 2.2 Quiz
How to combine combinational logic together to create selectable computations in the
Arithmetic Logic Unit

Wednesday
Class Project Ideation 3

Sunday (11:55:00 PM)
Module 3.1 Assignment Due
Class Project Proposal Due

Week 7

Module 3.2 - Sequential Logic and Memory

Monday
Module 3.1 Quiz
How to build sequential logic from logic gates
How memory is built from sequential logic

Wednesday
Module 3.2 Lab - Arduino Lab 3

Sunday (11:55:00 PM)
Module 3.2 Assignment Due
Module 3.2 Lab Due
Week 8

Exam 1

Monday
Module 3.2 Quiz
Exam 1 Review

Wednesday
Exam 1

Week 9

Fall Break

Week 10

Module 4.1 - Computer Instructions Introduction

Monday
How instructions are given to computers
How the hardware we have learned about before interact with those instructions at a high leve

Wednesday
Module 4.1 Lab - MIPS Lab 1

Sunday (11:55:00 PM)
Module 4.1 Assignment Due
Module 4.1 Lab Due

Week 11

Module 4.2 - MIPS Instructions

Monday - NO CLASS
Cesar Chavez Day

Wednesday
Module 4.1 Quiz
In this part you will become familiar with MIPS instructions and write a few simple programs to demonstrate your understanding of the language.

Module 4.2 Lab - MIPS Lab 2

Sunday (11:55:00 PM)
Module 4.2 Assignment Due
Module 4.2 Lab Due

Week 12

Module 5.1 - Leaf and Non-Leaf Procedures and Functions

Monday
Module 4.2 Quiz
In this part you will learn to build out leaf and non-leaf procedures

Wednesday
Module 5.1 Lab - MIPS Lab 3

Sunday (11:55:00 PM)
Module 5.1 Assignment Due
Module 5.1 Lab Due

Week 13

Module 5.2 - Advanced Arithmetic Operations

Monday
Module 5.1 Quiz
In this part you will become familiar with floats and multiplication, as well as overflow.

Wednesday
Module 5.2 Lab - MIPS Lab 4

Sunday (11:55:00 PM)
Module 5.2 Assignment Due
Module 5.2 Lab Due
Class Project Prototypes Turn In
Week 14

Module 6.1 - Single Cycle CPU

Monday
Module 5.2 Quiz
In this part you will become familiar with single cycle processors and their datapaths.

Wednesday
Single Cycle CPU’s continued
Module 6.1 Lab - Single Cycle CPU

Sunday (11:55:00 PM)
Module 6.1 Assignment Due
Module 6.1 Lab Due

Week 15

Module 6.2 - Multi Cycle CPU and Pipelining

Monday
Module 6.1 Quiz
In this part you will see how we can breakdown our single cycle CPU into smaller pieces and gain some significant speed enhancements.

Wednesday
More on pipelining
Module 6.2 Lab - Pipelining

Sunday (11:55:00 PM)
Module 6.2 Assignment Due
Module 6.2 Lab Due
Class Project Turn In
Week 16

Project Review

Monday
Module 6.2 Quiz
First Group Presentations
Final Review 1

Wednesday
Second Group Presentations
Final Review 2

Week 17

Final Week

Monday
Final