Silicon Valley University

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Course Syllabus

Course Title: **Computer Architecture I**
Instructor: **Wenpong Allen Chen**
Date: Summer 2015
Course Number: CE450
Credit Hours: 3 Credit Hours
Course Length: 15 Weeks
Schedule: **Wednesday/Thursday/Friday** 6:30PM-9:30PM
Text Book: Computer Organization and Design (5th Edition)
David A. Patterson and John L. Hennessy (ISBN-978-0-12-407726-3)

Course Description: This course covers the fundamentals of the Computer Organization, including the computer structures and functions, the MIPS Assembly language syntax and coding, and the computer performance, the pipeline datapath control, the parallelism programming, and the details of each computer structure five components, the Input, the Output, the Control Logic, the Datapath, and the Memory.

Co-Requisite:

Course Objectives: Learning objectives of this course are:

- Understand what are the computer organization structures and functions
- Understand the pipeline datapath control and parallelism programming
- Understand how to write MIPS Assembly language and machine code

Learning Outcomes: Upon successful completion of this course, students will be able to do:

(1) Using the pipeline control to promote the computer performance
(2) Using the parallel programming to promote software performance
(3) Convert High Level Language Program C to MIPS Assembly Code

Course Outline

Week	Topics, Assignments
1	Course Introduction, Class Rules, Grading, Introduction to Computer Structure
2	Computer Performance
3	MIPS Assembly Instructions Basics
4	Signed and Unsigned Numbers
5	Logic Operations and Branch
6	MIPS Addressing
7	Midterm Test
8	Arithmetic Operations

Week	Topics, Assignments
9	Multiplication and Division
10	Floating Point
11	Building Datapath
12	Pipeline Datapath
13	Data Control Hazard
14	Instruction Parallelism
15	Final Exam

Instruction Methods: Lecture, Discussion, Project Exercises

Grading:

Homeworks and Quizzes	30%
Class Performance and Projects	20%
Midterm Exam	25%
Final Exam	25%
Total	100%

Grading Scale: Approximate letter grade range

90 <= A <= 100
80 <= B < 90
70 <= C < 80
60 <= D < 70
F < 60

Grading System:

Score Range	Grade	GPA
98 - 100	A+	4.3
92 - 97.9	A	4.0
90 - 91.9	A-	3.7
88 - 89.9	B+	3.3
82 - 87.9	B	3.0
80 - 81.9	B-	2.7
78 - 79.9	C+	2.3
72 - 77.9	C	2.0
70 - 71.9	C-	1.7
68 - 69.9	D+	1.3
62 - 67.9	D	1.0
60 -61.9	D-	0.7
Below 59.9	F	0.0

Policies and Procedures:

- Please refer to the SVU school policy
  http://www.svuca.edu/home/refund_policies.html

Honor Code: All students taking courses in the SVU agree; individually and collectively, that they will neither give nor receive un-permitted aid in examination or other course work that is to be used by the instructor as a basis of grading.

Attendance: Required.

Make-up Work: No make-up class allowed for absence. No late homework.

Resources: All students are encouraged to use library-collected reference books and IEEE, ACM electronic Journals. Students can also use ProQuest and ProQuest/ABI database for research and projects.

Revision Date: 05/06/2015