Course Syllabus
Fall 2018

Course Number:	CS 321
Course Title:	Computer Architecture
Course Coordinator:	Dr. Qiang He
Credit:	3 Semester Hours
Email:	qianghe@mvsu.edu
Website:	http://bluebird.mvsu.edu/~qianghe

Catalog Description: Introduction to the internal logical structure of computers and the techniques of machine level programming; architectures and functioning of micro/conventional computer systems.

Course Prerequisite: CS204 Computer Programming II

Textbook: Computer Organization and Architecture (10th Edition); William Stallings; Publisher: Pearson; 10 edition (January 22, 2015); ISBN-10: 0134101618/ISBN-13: 978-0134101613

Program Outcomes: Student will be able to:
1.1 Demonstrate proficiency in the understanding of hardware.

References:
Null, L., & Lobur, J., Computer Organization and Architecture, 3rd ed. 40 Sudbury, MA: Jones and Bartlett, 2012
Flynn, I. M. & McHoes, A. M. Understanding Operating Systems, 5th ed. Boston, MA: Thomson Course Technology, 2008

Course Goal:
1. Students will develop an understanding of computer hardware to evaluate the tradeoffs between cost and performance issues.
2. Understand the fundamentals of computer organization and architecture.

Prerequisites by Topics
Thorough of understanding of:
- Unsigned binary integers: representation, conversion, arithmetic
- Basic Assembly Language: Instruction types, addressing modes
- Design and construction of a combinatorial circuit
- A High-level programming language.

Major Topics Covered in the Course
Introduction of Computer Architecture and Organization – (1 Wk)
Data Representation in Computer Systems – (2 Wk)
Boolean Algebra and Digital Logic – (1 Wk)
MARIE: An Introduction to a Simple Computer – (2 Wks)
A Closer Look at Instruction Set Architectures – (1Wks)
Memory – (1 Wk)

Input / Output and Storage Systems – (1 Wk)
Alternative Architecture – (2 Wks)
Performance Measurement – (2 Wks)

Estimate Category Content

	Core	Advanced
Data Structures	0	0
Computer Organization & Architecture	2.0	1
Algorithms	0	0
Software Design	0	0
Concept of Programming Languages	0	0

Social and Ethical Issues
No significant component.

Theoretical Content
This is the first course in digital logic and computer architecture/organization for computer science students. The course covers the theory of combinational circuit design from standard gates, design partitioning, synchronous circuits, CPU data path, memory hierarchy and input/output component.

Problem Analysis
Student experiment with analyzing design solutions for correctness, timing issues, and alternative solutions for performance

Assessments
Grading System
90-100 A
80-89 B
70-79 C
60-69 D
Below 60   F

Evaluation
Quizzes and Homework   25%
Midterm and Final Examinations   40%
Project 25%
Attendance and participation 10%

Cheating Penalties:
Copying and/or cheating of any kind will not be tolerated. Any infraction will result in a grade of F, along with the student being reported to the appropriate disciplinary committee and the Dean of Student Affairs.

Make-up Policy:
Students absent for any reason whatsoever are expected to do the full work of the course, and are responsible to the instructor work missed through the registration, illness, or any other cause. The instructor is not obligated to give any "make-up work". Students absent from class for an extended period due to illness, family tragedy, or other legitimate reasons are to file appropriate documentation with the Dean of Students. When students must be absent from a class, they are required to make arrangements satisfactory to the instructor with regard to work missed.

When students know in advance that they will be absent from class, instructors must be notified and arrangements made to secure arrangements.

If any work is accepted late, a 10% per day will be assessed.

Students with special needs:
Mississippi Valley State University is committed to providing reasonable accommodations for students with a documented disability. If you feel you are eligible to receive accommodations for a covered disability (medical, physical, psychiatric, learning, vision, hearing, etc.) and would like to request it for this course, you must be registered with the Services for Students with Disabilities (SSD) program administered by University College. It is recommended that you visit the Disabilities Office located inside the EMAP Computer Lab in the Technical Education (IT) Building to register for the program at the beginning of each semester.
For more information or to schedule an appointment, please contact Mr. Billy Benson, Jr. via phone or email at 662-254-3005 or billy.benson@mvsu.edu.