

## Course Abstract

*If you need accommodations due to a disability, contact Disability Services in Edison Hall Room 100, 732.906.2546.*

*To foster a productive learning environment, the College requires that all students adhere to the Code of Student Conduct which is published in the college catalog and website.*

### **Course ID and Name: CSC264 – Computer Organization and Architecture II**

#### **Department: Business and Computer Science**

Chairperson or Course Coordinator: Dr. Aslihan Cakmak

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**Prerequisites:** CSC263

**Co-requisites:** None

#### **Course Description:**

This course presents an introduction to the organization and architecture of computer systems, including the Von Neumann model, data representation, assembly language organization, memory and input/output methodologies. The architecture of the central processing unit, arithmetic and logic unit, and microprogram controller are examined in sequence. The basic architecture and function of operating systems is also covered.

**General Education Status:** N/A

**Credits:** 3      **Lecture Hours:** 2      **Lab Hours:** 2

#### **Learning Outcomes:**

**Upon successful completion of this course, a student will be able to:**

1. Explain what is meant by computer architecture.
2. Draw a block diagram and explain the Von Neumann model of a computer, the arithmetic and logic unit of a computer and a microprogram controller and explain their operation.
3. Describe the parts and function of an operating system.
4. List the various types of memory and the advantages and disadvantages of each.
5. Describe and illustrate pipelining.
6. Demonstrate use of the binary number system.

7. Demonstrate the ability to read logic diagrams.

**Course Content Areas:**

- Introduction, Organization and Architecture, History, Von Neumann model Sections
- Data Representation: Floating Point Sections
- Data Representation: Character, Error Detection Sections
- Introduction to a Simple Computer Sections
- Assembler, Real-World Architecture Sections
- EXAM 1, MIPS Function Calls
- MIPS Function Calls
- Memory: Hierarchy, Cache Memory Sections
- Memory: Virtual Memory, Real-World Examples Sections
- Input/Output Systems: Architecture, Performance Sections
- Input/Output Systems: Disks, RAID, Future Sections
- EXAM 2, System Software Sections
- Alternative Architectures Sections
- Performance Measurement and Analysis Sections