SUSSEX COUNTY COMMUNITY COLLEGE

Master College Syllabus

COMS239	FUNDAMENTALS OF COMPUTER ARCHITECTURE	
COURSE	COURSE TITLE	CLASSIFICATION
3	2	2
CREDITS	CLASS HOURS	LAB HOURS

RECOMMEND TEXT:

Title:	Computer Organization and Design
Author:	Patterson and Hennessy
Publisher:	Morgan-Kaufmann
Publication Date:	20014

CATALOG DESCRIPTION

This course is an introduction to computer organization and architecture. The topics covered are the overview of the early Von Neumann model through modern architectural models. Topics also presented are data representation, digital logic, circuit diagrams, assembly language organization, processors, memory addressing, memory storage, input/output processing and interfaces. Lab Fee Rquired.

PREREQUISITE: Proficiency on College Placement Test

CO-REQUISITE: COMS114 or 142

TOPICS TO BE INCLUDED

1. Architectural History
2. Machine Language
3. Computer Organization
4. Assemblers, Compilers, Linkers and Loaders
5. Addressing and Addressability
6. Computation and Arithmetic
7. CPU Pipeline Processing
8. Interrupt Handling
9. Real and Virtual Memory
10. Auxiliary Storage and Paging
11. Caching
12. Input and Output
13. Multiprocessors
14. Dynamic Address Translation
15. Virtual Machine Theory
16. Parallelism in programming

COURSE COMPETENCIES/LEARNING OUTCOMES:

In a manner deemed appropriate by the instructor and approved by the department, students will be able to:

1. Demonstrate a knowledge of the relationship and interaction between computing hardware and software. (Gen. Ed. 3, 4)

2. Explain Boolean logic gates and its application to designing computer arithmetic logic unit hardware. (Gen. Ed. 3, 4)
3. Demonstrate use of Assembly Language programming in one of 3 architectures (Gen. Ed. 4)
4. Be able to discuss CPU pipelining, its advantages and drawbacks. (Gen. Ed. 4)
5. Explain the role of peripheral devices and their principles of operation in relation to the operating system. (Gen. Ed. 4)
6. Explain the role of peripheral devices and their principles of operation. (Gen. Ed. 4)
7. Explain the basis for arithmetic operations. (Gen. Ed. 4)
8. Explain and discuss the organization of computer architectures. (Gen. Ed. 4)
9. Describe the interruption mechanism and the transfer of control between applications and supervisory tasks. (Gen. Ed. 4)
10. Explain the role of standards and how they influence computer architecture (GEN Ed. 4)
11. Demonstrate knowledge of the history of the modern computing machine (Gen. Ed. 4)
12. Be able to intelligently discuss and master the subject matter presented in this course. (Gen. Ed. 4)