

Maryland in Europe Graduate Programs
Bowie State University

Computer Concepts
INSS 510

31 March 2003 -23 May 2003
Computer Lab, Ground Floor Admin II – Capodichino - Naples
Tuesday & Thursday
Time: 5:30 p.m. to 8:30 p.m.

Instructor: Leonello Calabresi
Mailing Address:
Email Address: lcalabresi@faculty.ed.umuc.edu
Consultation: 30 minutes before each lesson, or by appointment.

Course Description: *Prerequisites: Undergraduate programming and college algebra, or permission of the instructor.* Provides an overview of basic computer concepts as they apply to MIS professionals. Emphasis is on basic machine architecture including data storage, manipulation, the human-machine interface including the basics of operating systems, algorithms and programming languages. In addition, the basic concepts of data organization including data and file structures are examined. Emerging trends in computer technology and their impact on organizational information systems are also discussed.

Course Goals/Objectives:

Goals: Upon completion of the course, participants should:

1. Understand basic principles of computer architecture
2. Understand major operating system concepts, including the interrelationships between operating systems and computer hardware
3. Understand concepts of programming languages
4. Understand computer logic and data representation
5. Be conversant with the terminology describing computer hardware and software
6. Understand how computer peripherals work
7. Understand basics of network architectures
8. Understand new developments in computer technology

Objectives: At the conclusion of this course the student will be able to:

1. Define the basic terms and processes related to computer systems architecture
2. Discuss components of an operating system
3. Describe the mechanisms by which an operating system manages hardware and software resources
4. Describe progression of operating system development
5. Define the relationship between application and system software
6. Describe the various types of programming languages

7. Describe the processes of translating and executing a program
8. Describe the process for developing applications
9. Describe basic methods of data representation
10. Describe the characteristics of data storage technology and how it influences the performance of computer systems
11. Describe the use of buffers and caches to improve computer system performance
12. Describe the use of data compression to improve computer system performance
13. Describe the concepts of file systems
14. Describe the characteristics and implementation of input and output devices
15. Describe the basic concepts of communication protocols
16. Summarize the advantages and disadvantages of distributed computing systems
17. Describe the technological trends in computer development
18. Discuss ethical issues in computing
19. Research current topics in computing

Text: Irv Englander, *The Architecture of Computer Hardware and Systems Software*, Wiley, 2nd ed.

Grading Information: Grades for this course will be assigned as follows:

A	93 +	C	70 – 79%
B	80 – 92	F	Below 70% F(a) or regular non-attendance F(n)

Course Requirements: Grades for this course will be based on the following scale.

Midterm Examination:	30%
Final Examination:	30%
Project:	10%
Research paper	20%
Research paper presentation	10%

Project Description:

There will be 1 project in this course.

- Students are free to accomplish the assignment using the programming language of their choice
- Students are expected to fully test their program and analyze the results. If the results do not meet expected values, students should explain the reason why, by analyzing the algorithm used and trying to identify where potential problems could be.
- The programming assignment will be discussed in class.
- **It is highly recommended students be able to program at a level compatible with CMIS 140 or INSS 505.**

Programming project will be graded as follows:

Functionality (program works and meets specification)	10%
Proper code design	60%
Comments/Documentation	15%
Format	15%

About the Programming Assignment

This programming project is intended to reinforce the basics of programming and hardware architecture. The ultimate success of any system is the proper marriage of software and hardware, allowing both to operate at peak efficiency.

Research Paper:

It needs to be well thought out and present the information at a level compatible with a graduate course. The paper should generally be 12-15 pages in length. It should be typed using double spacing and size 12 font. Add a cover page formatted as described in the programming assignment section. It does not need to be submitted in a folder but all pages must be stapled in the upper left corner. Keep a copy, as papers will not be returned but will be reviewed in class. Topics will be assigned during the first week of the course. Papers must include an introduction, conclusion, and bibliography.

Papers will be graded using the following criteria:

Technical Accuracy 35 %

Grammar & Spelling 15 %

Presentation (how well the concepts are presented) 40 %

Format 10%

Paper presentation – will be graded following the criteria below:

Did you deliver your message? 60%

How effectively did you get it across? 20%

Timeliness (appropriate use of time allotted) 20%

Course Schedule: This is a tentative schedule and it is subject to changes.

Module	Topics	Assigned readings/assignments due
1	Course Presentation Introduction to system architecture concepts	Chapter 1
2	Number systems, data representation	Chapter 2 Chapter 3
3	Numerical data formats	Chapter 4 Chapter 5
4	An introduction to digital computer logic. Little Man Computer	Supplementary Chapter 1 Chapter 6
5	The CPU and Memory Input/Output	Chapter 7 Chapter 8
6	Computer Peripherals	Chapter 9
7	CPU design and organization, addressing modes	Chapter 10 (10-1, 10-2, 10-3, 10-4)
8	Mid Term Exam	Covers material through class 7
9	Modern Computer Systems concepts	Chapter 11 Due: Programming Project
10	The X86 family The PowerPC	Chapter 12 Chapter 13
11	Introduction to Operating Systems, and Process concepts. Scheduling and memory management	Chapter 14 Chapter 16
12	Programming Tools	Chapter 18
13	Introduction to data communication and Networking	Chapter 13 Due: Research Paper
14	Research paper presentation	
15	Course evaluation Review for the final exam	
16	Final exam	

Academic Policies: Please refer to the UMUC Maryland in Europe Graduate Catalog, available online at http://www.ed.umuc.edu/visit/pubs/catalog/grad_02-03.pdf or from your local Education Center, for information on the following:

Academic Integrity

Course Load

Exception to Policy

Grade Appeal Process

Make-up Examinations

Nondiscrimination

Students with Disabilities

CODE OF CIVILITY

To promote a positive, collegial atmosphere among students, faculty, and staff, Maryland in Europe has developed the following Code of Civility:

Respect

Treat all students, faculty, and staff with respect and in a professional and courteous manner at all times and in all communications, whether in person or in written communication (including e-mail).

Kindness

Refrain from using profanities, insults, or other disparaging remarks.

Truth

Endeavor to cite only the truth and not knowingly misrepresent, mischaracterize, or misquote information received from others.

Responsibility

Take responsibility for our own actions instead of blaming others.

Cooperation

Work together with other students, faculty, and staff in a spirit of cooperation toward our common goals of seeking and providing quality education.

Privacy

Strive to uphold the right to privacy and not talk about others.

Nondiscrimination

Respect the differences in people and their ideas and opinions and reject bigotry.

About Your Instructor: Leonello Calabresi was born in Aversa (CE), Italy in 1966. He received the Doctor Degree in Computer Science in 1997 at University of Salerno. He works in the Research Center of Advanced Systems S.r.l. Company in Naples. His fields of interest is Data Warehousing with a special focus on Data Mining, and Data Structures.

He has contributed in the creation of Advanced Systems' Legacy System, developing client / server software components, based on Internet Technology, and defining the general guidelines for the development of Multi-Tier and Web based Applications in his Company.

He is a reference point in Advanced Systems in the field of Object Oriented Programming and Object Oriented Design, using C++ and Object Pascal.

He has a broad range of experience in working with IBM Mainframes and IBM operating systems such as MVS and OS/400. He has knowledge about the most diffuses RDBMS such as ORACLE, SQL-Server and IBM DB2.