

Maryland in Europe Graduate Programs  
Bowie State University

## **Computer Concepts INSS 510**

09 June to 31 July 2003  
Education Center Alconbury, England  
Tuesdays/Thursdays, 1800 to 2100

**Instructor:** Carl A. Scharpf  
**Mailing Address:** PSC 37, Box 767  
APO AE 09459  
**Email Address:** [cascharpf@ed.umuc.edu](mailto:cascharpf@ed.umuc.edu)  
**Consultation:** Tuesday/Thursday 1700 to 1800

**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:** Englander, Irv. (2003). *The Architecture of Computer Hardware and Systems Software: An Information Technology Approach* (3<sup>rd</sup> ed.), International Edition. John Wiley and Sons, Inc., ISBN 9-780471-36897.

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

A	90% +	C	70 – 79%
B	80 – 89%	F	Below 70% F(a) or regular non-attendance F(n)

**Course Requirements:**

Assignments	30%
Midterm Examination:	30%
Final Examination:	30% *
Project	10%

\* **Final Exam Note:** Graduate students will have an extra, comps-style, essay question on their midterm and final exams.

**Project Description:** Using Microsoft Visual Studio’s HTML Workshop, you will create a Windows-based, online Help System describing one of the major topics discussed in the term. Graduate students will present their system to the class.

**Course Schedule:**

Module	Topics	Assigned readings/assignments due
1	Computer Systems Number Systems.	Chapter 1, 2
2	Data Formats. Representing Integer Data.	Chapter 3 Chapter 4
3	Floating Point Numbers.	Chapter 5
4	The Little Man Computer.	Chapter 6 Assignment 1 Due
5	The CPU and Memory.	Chapter 7

6	Assembly Language	Chapter 17.0 to 17.3
7	Assembly Language	
8	Midterm Exam	Assignment 2 Due
9	CPU and Memory: Design, Implementation, and Enhancement.	Chapter 8
10	Input/Output	Chapter 9
11	Computer Peripherals.	Chapter 10
12	File Management	Chapter 16 Assignment 3 Due
13	Modern Computer Systems, Clusters, and Networks.	Chapter 11
14	Operating Systems: An Overview	Chapter 13
15	The User View of Operating Systems	Chapter 14
16	Final Exam	Project Due

**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](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:** Carl Scharpf received his M.S. degree from the University of Southern California (USC) in 1986. Afterward graduating, he spent 10 years working at USC's School of Engineering maintaining networked-computer labs and teaching. Since then, he has taught at the university level and worked at Microsoft.