

Maryland in Europe Graduate Programs
Bowie State University

Computer Concepts INSS510

5/6 and 26/27 April, and 10/11 and 18 May
Rhein-Main Education Center
0900 to 1700 hrs

Instructor: Ron Dickinson

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Consultation: Before and after class; by email and
phone 0931-404-1951 (before 10pm please)

Text: [*Systems Architecture* \(3rd ed.\) by Burd, Stephen D. \(2001\). Boston: Course Technology.](#)

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.

About the Instructor

Dr. Dickinson first began programming computers in 1964 with the first IBM System/360 mainframes. He was an IBM Systems Engineer for many years and worked with project managers in Fortune 500 corporations and government to apply computer technology to many corporate information systems needs. He also spent several years in IBM HQ developing product and marketing strategies for IBM's networking, office and workstation product divisions. He also holds a M.S. and Ph.D in Marketing and MIS and emphasizes an integrated view of business and technical aspects of systems design and development. Ron also has been an independent consultant to small and medium sized businesses and e-businesses in the Pacific Northwest and an author of commercial software. Ron has also taught graduate and undergraduate courses in marketing, in addition to Visual Basic and Java programming before coming to UMUC.

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 architecture and design
8. Understand and analyze 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 from original concept to deployment
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 from consumer and business viewpoints
19. Research current topics in IT industry

In addition to the above academic course objectives, students are expected to improve their skills in the following areas:

1. **Critical Thinking:** Students should improve their ability to analyze computer user situations and make appropriate suggestions for resolving business problems through computer systems. The projects in this class encourage students to think critically about real-world situations.
2. **Writing Skills:** Students should improve writing skills through development of the article reviews and formal report on the major project and on the mid-term and final.
3. **Oral Presentation Skills:** Students should improve their presentation skills through their class discussions, and group presentations.
4. **Computer Skills:** Students are expected to improve their computer skills by using word processing and project management software. The use of Internet and e-mail are also encouraged. If available, use of system design aids (like Visio products) is encouraged.

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

A	90% +	C	70 – 79.9%
B	80 – 89.9%	F	Below 70% F(a) or regular non-attendance F(n)

Course Requirements:

20%	Midterm Examination:	A multiple choice and short answer test with questions primarily from the text readings, with some from class discussions
30%	Final Examination:	Multiple choice questions over concepts and terminology since the midterm plus some short essay questions (1-2 paragraphs) emphasizing the material and class discussions from after the midterm.
30%	Project:	A research paper of at least 8-10 pages (double-spaced) in length with (at least 10) references on a computer systems subject of the student's choice, in a subject area covered in class or the text. Example, advanced processor chip design.
10%	Article Reviews (2 – 5% ea)	These assignments are individual assignments where graduate students will pick an full length article from a state-of-the-art journal (like Communications of the ACM) and write a summary of the article along with a <i>critical analysis of its merits, limitations and its applicability</i> to industry practices (2 to 3 double-spaced pages in length).

10%	Programming Exercises { Students will have exposure to multiple programming languages and the exercises can be done in UMUC Computer Labs if lab schedule permits. }	Exercise(s) in Microsoft Office where the student creates a simple productivity enhancing program using either the macro facility, or Visual Basic. Some examples from Java, JavaScript and/or C++ may also be included. The purpose is to expose students to different programming systems and their managerial and strategy implications.
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Course Schedule

Weekend Number (day–Sat / Sun)	Topics	Assigned readings
		Assignments due
1 (Sat am)	Course Overview Systems Architecture	Text Chapters 1, 2
1 (Sat pm)	Data In Computer Systems	Text Chapter 3
1 (Sun am)	Processor Designs and Trends	Text Chapter 4
1 (Sun pm)	<i>Programming Workshop #1</i>	Handouts
2 (Sat am)	Data Storage Technology	Text Chapter 5
2 (Sat pm)	Computer System Design & Performance	Text Chapter 6
2 (Sun am)	Computer I/O Principles & Devices	Text Chapter 7
2 (Sun pm)	<i>Programming Workshop #2</i>	Handouts
	MIDTERM EXAM	
3 (Sat am)	Computer Networks	Text Chapter 8, 9
3 (Sat pm)	Developing Applications and Systems	Text Chapter 10 First Article Review Due
3 (Sun am)	Operating Systems: Principles and Design	Text Chapter 11
3 (Sun pm)	File Systems and Their Management	Text Chapter 12
	<i>Programming Workshop #3</i>	Handouts
4 (Sat am)	Internet based Applications and Systems System Administration	Text Chapter 13, 14 Second Article Review Due
4 (Sat pm)	FINAL EXAM	Project Papers Due
N/A		
N/A		

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: Please include a short autobiographical sketch of yourself for the students' information – it is something that they do appreciate when choosing to sign up for a course.